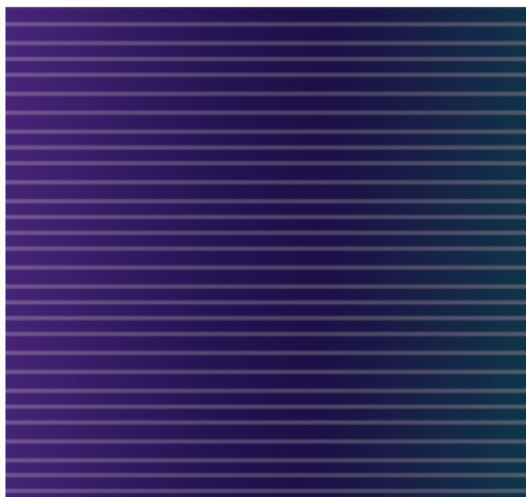


PSSA Mathematics Glossary to the

Assessment Anchors and Eligible Content Aligned to the Pennsylvania Core Standards



Pennsylvania Department of Education

www.pdesas.org

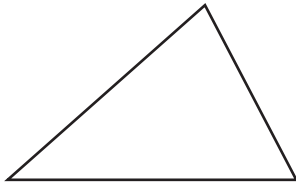
www.education.state.pa.us

June 2014

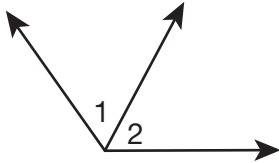
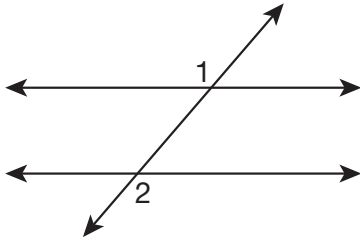
INTRODUCTION

The PSSA Mathematics Glossary includes terms and definitions associated with the Mathematics Assessment Anchors and Eligible Content aligned to the Pennsylvania Core Standards. The terms and definitions included in the glossary are intended to assist Pennsylvania educators in better understanding the PSSA Assessment Anchors and Eligible Content. The glossary does not define all possible terms included on an actual PSSA administration, and it is not intended to define terms for use in classroom instruction for a particular grade level or course.

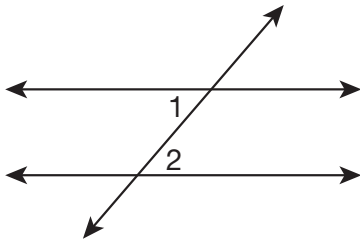
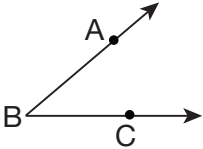
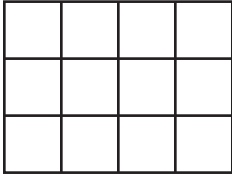
This glossary provides definitions for terms in Grades 3–8. In addition to the term and its definition, the grade level at which the term would first be introduced is included. For terms not specifically found within the Assessment Anchors and Eligible Content, an asterisk (*) is found next to the grade level, indicating that the grade is an estimated grade for that term.

Term	Definition	Grade
Absolute Value	The <u>magnitude</u> of an <u>expression</u> under consideration. The <i>absolute value</i> of a number is the distance the number is from 0 on the <u>number line</u>. The notation used to designate the <i>absolute value</i> of <u>expression</u> w is w, which is read as “the <i>absolute value</i> of w.” For example: • $-12 = 12$ • $451 = 451$ • $\frac{-4}{7} = \frac{4}{7}$ • $9\frac{1}{2} = 9\frac{1}{2}$ • $-3 + 2 = -1 = 1$ See also <u>Magnitude</u>.	6
Acute Angle	An <u>angle</u> with a measure greater than 0° and less than 90° .	4
Acute Triangle	A <u>triangle</u> in which all interior <u>angles</u> are <u>acute angles</u>.  Acute Triangle See also <u>Obtuse Triangle</u> and <u>Right Triangle</u>.	4*
Addend	A number or <u>expression</u> that is added to another number or <u>expression</u>. For example: • In the <u>equation</u> $2 + 7 = 9$, the 2 and 7 are <i>addends</i>. • In the <u>equation</u> $\square + 9 = 24$, the $\square$ and 9 are <i>addends</i>. • In the <u>equation</u> $(2 + 3) + 6 = 11$, the expression $(2 + 3)$ and the 6 are <i>addends</i>.	3

An asterisk (*) found next to the grade level indicates that the term is not specifically found within the Assessment Anchors and Eligible Content.

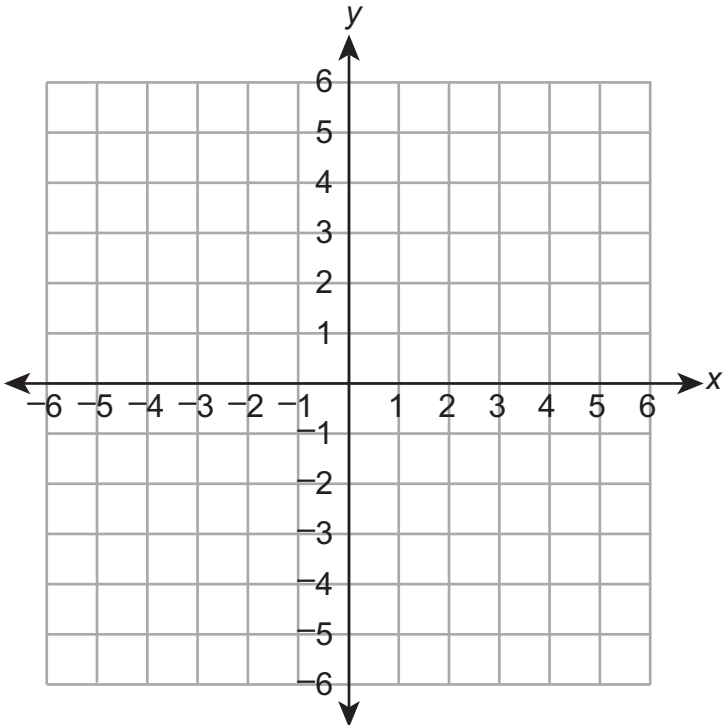
Term	Definition	Grade
Additive Inverse	An <u>expression</u> that can be added to a given <u>expression</u> so that their <u>sum</u> is zero. For example: • 82 and -82 are <i>additive inverses</i>. • (19×3) and $-(19 \times 3)$ are <i>additive inverses</i>. See also <u>Opposite of a Number</u>.	6*
Adjacent Angles	Two <u>angles</u> with a common side and a common <u>vertex</u> but no overlap.  Adjacent Angles In the picture, <u>angle 1</u> and <u>angle 2</u> are <i>adjacent angles</i>.	4
Algebraic Expression	A mathematical <u>expression</u> that contains one or more <u>variables</u>. For example: • $7x + 3$ • $\frac{2w - 17}{19r + 7m}$ • $-4xy$ See also <u>Numerical Expression</u>.	6
Alternate Exterior Angles	Two nonadjacent <u>angles</u> on opposite sides of a <u>transversal</u> and on the exterior of a pair of <u>parallel lines</u> intersected by the <u>transversal</u>.  Alternate Exterior Angles In the picture, <u>angle 1</u> and <u>angle 2</u> are <i>alternate exterior angles</i>. See also <u>Alternate Interior Angles</u> and <u>Corresponding Angles</u>.	7

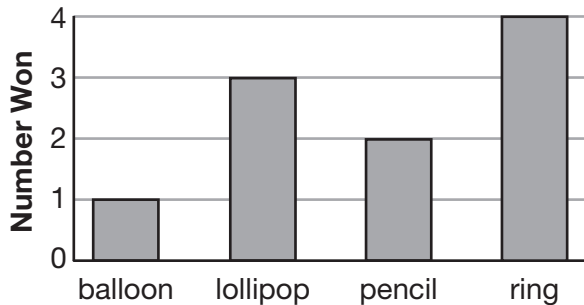
An asterisk (*) found next to the grade level indicates that the term is not specifically found within the Assessment Anchors and Eligible Content.

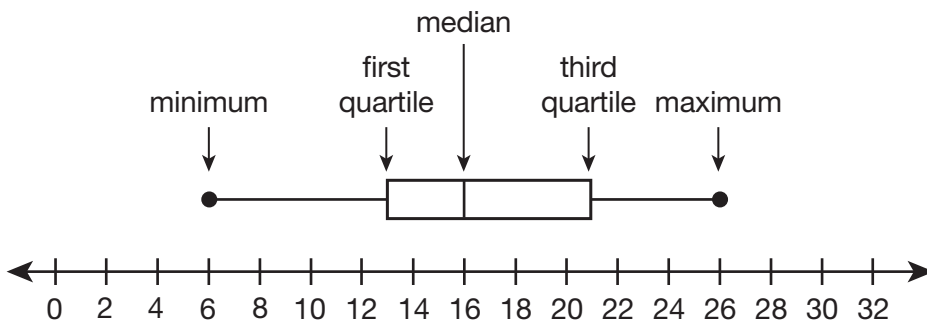
Term	Definition	Grade
Alternate Interior Angles	Two nonadjacent <u>angles</u> on opposite sides of a <u>transversal</u> and between a pair of <u>parallel lines</u> intersected by the <u>transversal</u>.  Alternate Interior Angles In the picture, <u>angle 1</u> and <u>angle 2</u> are <i>alternate interior angles</i>. See also <u>Alternate Exterior Angles</u> and <u>Corresponding Angles</u>.	7
Angle	The inclination between intersecting lines, <u>line segments</u>, and/or <u>rays</u> often measured in <u>degrees</u> (e.g., a 90° inclination is a <u>right angle</u>). The figure is often represented by two <u>rays</u> that have a common endpoint. <i>Angles</i> are generally named using three <u>points</u>: one <u>point</u> from each <u>ray</u>, with the common endpoint in between (e.g., angle ABC consists of ray BA and ray BC). The symbol for an <i>angle</i> is $\angle$ and is generally used in conjunction with the three letters (e.g., angle ABC can also be written as $\angle ABC$).  Angle ABC ($\angle ABC$)	4
Area	The measure, in square units, of the interior of a plane figure. Units such as square feet (sq ft) and square centimeters (cm²) are used to measure <i>area</i>.  Area of a Rectangle In the picture, each small <u>square</u> represents 1 square unit and the <u>area</u> of the <u>rectangle</u> is 12 square units.	3

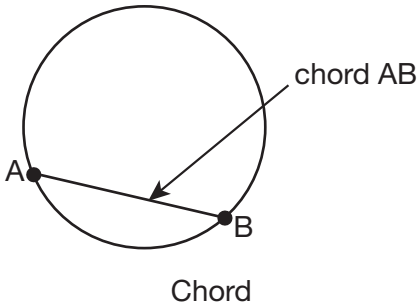
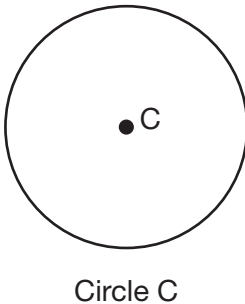
Term	Definition	Grade																																																												
Array	A rectangular arrangement of objects, symbols, or numbers. An <i>array</i> may or may not display vertical or horizontal grid lines. In an <i>array</i>, all rows are the same length and all columns are the same length. <table><tr><td>37</td><td>132</td><td>12</td><td>40</td><td>10</td><td>0</td><td>2</td><td>27</td><td>14</td><td>10</td></tr><tr><td>39</td><td>152</td><td>24</td><td>43</td><td>4</td><td>0</td><td>2</td><td>13</td><td>23</td><td>32</td></tr><tr><td>38</td><td>136</td><td>12</td><td>35</td><td>6</td><td>1</td><td>1</td><td>13</td><td>16</td><td>49</td></tr><tr><td>43</td><td>171</td><td>24</td><td>44</td><td>18</td><td>1</td><td>3</td><td>29</td><td>19</td><td>45</td></tr><tr><td>44</td><td>175</td><td>41</td><td>45</td><td>4</td><td>0</td><td>11</td><td>25</td><td>30</td><td>39</td></tr><tr><td>39</td><td>150</td><td>13</td><td>35</td><td>10</td><td>0</td><td>4</td><td>30</td><td>9</td><td>49</td></tr></table> Array	37	132	12	40	10	0	2	27	14	10	39	152	24	43	4	0	2	13	23	32	38	136	12	35	6	1	1	13	16	49	43	171	24	44	18	1	3	29	19	45	44	175	41	45	4	0	11	25	30	39	39	150	13	35	10	0	4	30	9	49	3
37	132	12	40	10	0	2	27	14	10																																																					
39	152	24	43	4	0	2	13	23	32																																																					
38	136	12	35	6	1	1	13	16	49																																																					
43	171	24	44	18	1	3	29	19	45																																																					
44	175	41	45	4	0	11	25	30	39																																																					
39	150	13	35	10	0	4	30	9	49																																																					
Associative Property (Addition or Multiplication)	The property that asserts the grouping of adjacent <u>addends</u> or <u>factors</u> is irrelevant. That is, $(a + b) + c = a + (b + c)$ and $a \times (b \times c) = (a \times b) \times c$. For example: • by the <i>associative property</i> of addition: $(3 + 9) + 2 = 3 + (9 + 2)$ • by the <i>associative property</i> of multiplication: $(3 \times 9) \times 2 = 3 \times (9 \times 2)$ Note: by contrast, subtraction and division do not hold true under the <i>associative property</i> See also <u>Commutative Property (Addition or Multiplication)</u>.	3																																																												
Average	See <u>Mean</u> .	3*																																																												

An asterisk (*) found next to the grade level indicates that the term is not specifically found within the Assessment Anchors and Eligible Content.

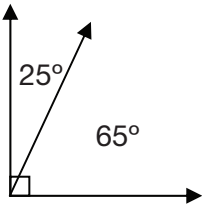
Term	Definition	Grade
Axis	A vertical or horizontal <u>number line</u>, both of which are used to define a <u>coordinate grid</u>. The horizontal <u>axis</u> is the <u>x-axis</u>, and the vertical <u>axis</u> is the <u>y-axis</u>. The plural of <u>axis</u> is <u>axes</u>. The intersection of the two <u>axes</u> occurs at 0 of both <u>number lines</u>. This intersection is the <u>origin</u>, which is designated by the <u>ordered pair</u> (0, 0). The <u>axes</u> divide the <u>plane</u> into four <u>quadrants</u>. When a <u>point</u> on a <u>coordinate grid</u> is named with an <u>ordered pair</u>, such as (5, 11), the first number (5) is the x-coordinate and the second number (11) is the y-coordinate. When representing an <u>equation</u> or other <u>relation</u>, the input values are on the <u>x-axis</u> and the output values are on the <u>y-axis</u>.  x-Axis and y-Axis See also <u>Origin</u>, <u>Quadrant</u>, <u>Ordered Pair</u>, <u>Independent Variable</u>, and <u>Dependent Variable</u>.	5

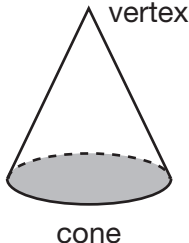
Term	Definition	Grade										
Bar Graph	A type of data display that represents a frequency distribution. The class intervals (buckets) in a <i>bar graph</i> represent categorical data. <i>Bar graphs</i> may either be vertical or horizontal. The class intervals in a vertical <i>bar graph</i> are located on the <u>x-axis</u> and form the bases of nonadjacent rectangular bars. Frequencies are listed on the <u>y-axis</u>. The class intervals in a horizontal <i>bar graph</i> are located on the <u>y-axis</u> and form the bases of nonadjacent rectangular bars. Frequencies are listed on the <u>x-axis</u>. The class interval representation of categorical data rather than numerical data, and nonadjacent bars rather than contiguous bars, are distinguishing features of a <i>bar graph</i> in contrast to a <u>histogram</u>. Carnival Prizes <table><caption>Data for Carnival Prizes Bar Graph</caption><thead><tr><th>Types of Prizes</th><th>Number Won</th></tr></thead><tbody><tr><td>balloon</td><td>1</td></tr><tr><td>lollipop</td><td>3</td></tr><tr><td>pencil</td><td>2</td></tr><tr><td>ring</td><td>4</td></tr></tbody></table> Types of Prizes Bar Graph	Types of Prizes	Number Won	balloon	1	lollipop	3	pencil	2	ring	4	3
Types of Prizes	Number Won											
balloon	1											
lollipop	3											
pencil	2											
ring	4											
Bivariate Data	Data or observations represented by two <u>variables</u>. The <u>variables</u> may or may not be independent. For example: • Age of players on a team and gender of the players (independent bivariate <u>variables</u>) • Gallons of gasoline purchased and cost of the gasoline purchased (dependent bivariate <u>variables</u>)	8										

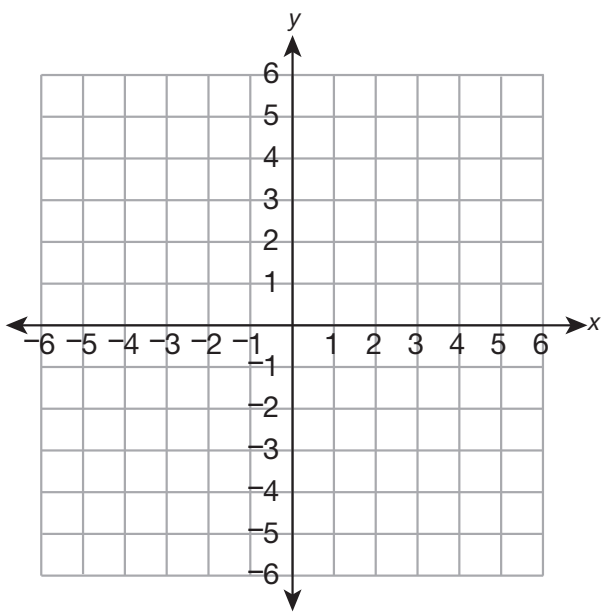
Term	Definition	Grade
Box-and-Whisker Plot	A plot that visually represents a set of data. A <u>rectangle</u> (the box) is used to represent the dispersion of points between the first and third <u>quartiles</u>, and <u>line segments</u> (the whiskers) are used to represent the dispersion of points between the <u>minimum</u> value and the first <u>quartile</u> and between the <u>maximum</u> value and the third <u>quartile</u>. A <u>line segment</u> drawn within the box represents the <u>median</u> value. The plot provides a five-number summary of the data—the <u>minimum</u>, first <u>quartile</u>, <u>median</u>, third <u>quartile</u>, and <u>maximum</u> values. This five-number summary of the data is specified on the plot or is evident from a <u>number line</u> drawn above or below the plot. The example below shows a horizontal <i>box-and-whisker plot</i>. <i>Box-and-whisker plots</i> can also be vertically oriented.  Box-and-Whisker Plot See also <u>Median</u>, <u>Quartile</u>, and <u>Interquartile Range</u>.	6
Chance Event (Random Event)	An event that leads to an outcome that cannot be determined prior to completion of the event but can be described probabilistically without an apparent cause (i.e., a probability of an outcome can be assigned). For example: flipping a coin is a <i>chance/random event</i>. The outcome cannot be determined prior to flipping the coin, but all possible outcomes can be assigned probability values (i.e., $P(\text{Head}) = \frac{1}{2}$, $P(\text{Tail}) = \frac{1}{2}$). Other examples of <i>chance/random events</i> include rolling a number <u>cube</u> or a “blind” drawing.	7

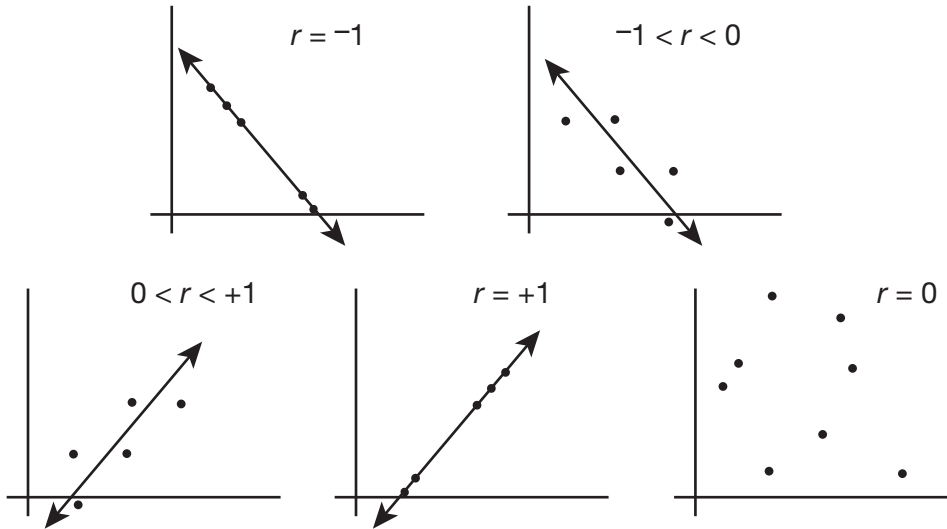
Term	Definition	Grade
Chord	A <u>line segment</u> with endpoints on a <u>circle</u>. If a <i>chord</i> contains the center of the <u>circle</u>, it is referred to as a <u>diameter</u> of the <u>circle</u>. 	8*
Circle	A two-dimensional (plane) figure for which all <u>points</u> are the same distance from its center. Informally, a perfectly round shape. A <i>circle</i> is identified by its center <u>point</u>. 	7
Circumference	The distance around a <u>circle</u>. The <i>circumference</i> of a <u>circle</u> is analogous to the <u>perimeter</u> of a <u>polygon</u>.	7
Coefficient	The constant by which a <u>variable</u> is multiplied. For example: - In the expression $6x$, 6 is the <i>coefficient</i>. - In the <u>expression</u> $27ab$, 27 is the <i>coefficient</i>.	6
Combination	A unique set or group of objects, symbols, numbers, etc. Only the contents of the set, not the order or arrangement, determine a <i>combination</i>. For example: - Contents of the sets $\{a, 5, \text{cat}\}$ and $\{5, a, \text{cat}\}$ represent the same <i>combination</i>. Placing these elements in a different order does not create a new <i>combination</i>. - Contents of the sets $\{w, 12, \text{dog}\}$ and $\{w, 23, \text{fish}\}$ are different <i>combinations</i>. Because one or more elements are different, the <i>combinations</i> are different.	6*

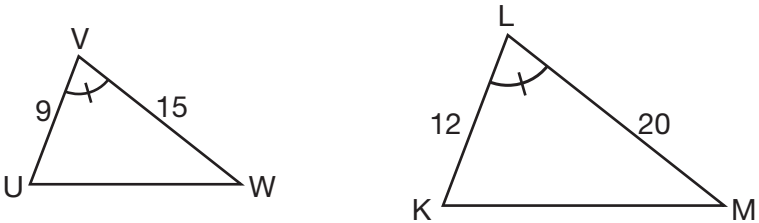
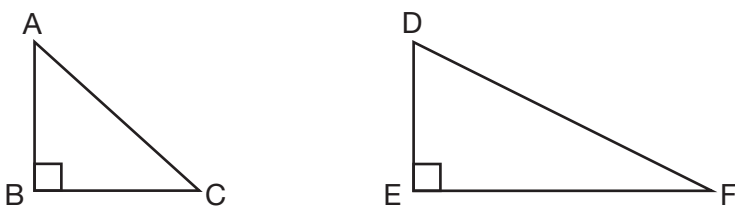
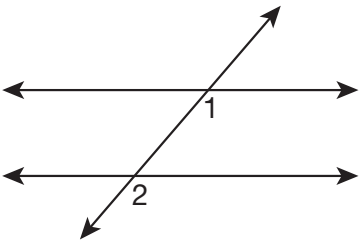
An asterisk (*) found next to the grade level indicates that the term is not specifically found within the Assessment Anchors and Eligible Content.

Term	Definition	Grade
Commutative Property (Addition or Multiplication)	The property that asserts the order of adding adjacent <u>addends</u> or multiplying adjacent <u>factors</u> is irrelevant. That is, $a + b = b + a$ and $a \times b = b \times a$. For example: - by the <i>commutative property</i> of addition: $7 + 4 = 4 + 7$ - by the <i>commutative property</i> of multiplication: $7 \times 4 = 4 \times 7$ Note: by contrast, subtraction and division do not hold true under the <i>commutative property</i>. See also <u>Associative Property (Addition or Multiplication)</u>.	3
Complementary Angles	Two <u>angles</u> for which the <u>sum</u> of their measures is 90°. If two <i>complementary angles</i> are also <u>adjacent angles</u>, they form a <u>right angle</u>. Each of two <i>complementary angles</i> is referred to as the complement of the other <u>angle</u> (e.g., a 65° angle is the complement of a 25° angle).  Complementary Angles See also <u>Supplementary Angles</u>.	7
Complex Fraction	A <u>fraction</u> in which the <u>numerator</u>, <u>denominator</u>, or both are also <u>fractions</u>. For example: $\frac{\frac{3}{7}}{24}$ $\frac{\frac{9}{11}}{\frac{5}{7}}$ $\frac{\frac{37}{13}}{\frac{29}{29}}$	7
Composite Number	A <u>whole number</u> greater than 1 that is not a <u>prime number</u> .	4

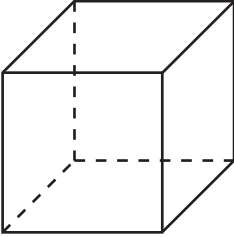
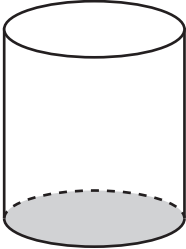
Term	Definition	Grade
Compound Event	An event composed of two or more contributing events. For example: • Occurrence of rain on a Saturday—contributing events are (1) it rains and (2) it is Saturday. • A tossed coin results in two heads—contributing events are (1) head on the first toss and (2) head on the second toss. A <i>compound event</i> is often a consideration in determining probability (compound probability).	7
Cone	A three-dimensional (solid) figure that has a circular base and one <u>vertex</u>. A <i>cone</i> has two <u>faces</u>: the circular base and the lateral <u>face</u>.  (On the PSSA, it may be assumed all <i>cones</i> are right <i>cones</i> unless otherwise specified.)	8
Congruent	Geometric figures that have the same size and the same shape. <i>Congruent</i> figures may have different orientations. • <i>Congruent angles</i> have the same <u>degree</u> measure. • <i>Congruent segments</i> are the same length. In the case of <i>congruent polygons</i>, the identifying <u>vertices</u> of the two <u>polygons</u> refer to <u>corresponding angles</u>.  Congruent Polygons	8
Constant of Proportionality	The constant multiplier by which one <u>variable</u> in a <u>proportional relationship</u> is related to the other <u>variable</u>. <i>Constant of proportionality</i> and <u>unit rate</u> are equivalent. For example: if an airplane travels at a constant <u>rate</u> of 250 miles per hour, the <i>constant of proportionality</i> in the <u>relation</u> of distance (d) to time (t) is 250 (i.e., $d = 250t$).	7

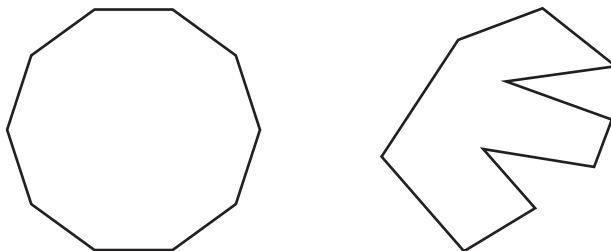
Term	Definition	Grade
Coordinate Grid (Coordinate Plane)	A <u>plane</u> that has been divided into spaces determined by <u>perpendicular number lines</u> in the <u>plane</u>. The <u>perpendicular number lines</u> represent the <u>axes</u> of the <i>coordinate grid</i>. The intersection of the <u>perpendicular number lines</u> is the <u>origin</u> and is used to determine <u>points</u> named with <u>ordered pairs</u> of numbers.  Coordinate Grid (or Coordinate Plane) In this picture the <u>axes</u> are labeled as x and y. The phrases <i>coordinate grid</i> and <i>coordinate plane</i> are interchangeable.	5

Term	Definition	Grade
Correlation	A measure of the correspondence between the change in one element in a <u>bivariate data</u> set and the change in the related element in the <u>bivariate data</u> set. <i>Positive Correlation</i>: when the increase in value of one element of a <u>bivariate data</u> set corresponds to an increase in value of the related element in the data set. For example, if an increase in the outdoor temperature corresponds to an increase in the number of ice-cream cones sold, the <i>correlation</i> is positive. <i>Negative Correlation</i>: when the increase in value of one element of a <u>bivariate data</u> set corresponds to a decrease in value of the related element in the data set. For example, if an increase in the outdoor temperature corresponds to a decrease in the number of ice skates sold, the <i>correlation</i> is negative. <i>Correlation Coefficient</i>: a number (r), such that $-1 \leq r \leq 1$, that provides a measure of the degree of <i>correlation</i> between elements in <u>bivariate data</u> sets. For perfect negative <i>correlation</i>, $r = -1$; for no <i>correlation</i>, $r = 0$; and for perfect positive <i>correlation</i>, $r = 1$. <i>Correlation coefficient</i> (r) can also be conceptualized as a numerical measure, such that $-1 \leq r \leq 1$, of the <i>correlation</i> between points in a data set and the related points predicted by a <u>line of best fit</u>.  Correlations See also <u>Line of Best Fit</u>.	8

Term	Definition	Grade
Corresponding Angles	Pairs of <u>angles</u> having the same relative position in geometric figures. Example 1:  Example 2:  Corresponding Angles In Example 1, $\angle UVW$ and $\angle KLM$ are <i>corresponding angles</i>. In Example 2, $\angle ABC$ and $\angle DEF$ are <i>corresponding angles</i>. <i>Corresponding angles</i> can also refer to two nonadjacent <u>angles</u> on the same side of a <u>transversal</u> with one <u>angle</u> between the <u>lines</u> cut by the <u>transversal</u> (interior) and one <u>angle</u> outside the <u>lines</u> cut by the <u>transversal</u> (exterior). <i>Corresponding angles</i> are in the same relative position with respect to the intersections of a <u>transversal</u> and two <u>parallel lines</u>.  Corresponding Angles (parallel lines cut by a transversal) In the picture, <u>angle 1</u> and <u>angle 2</u> are <i>corresponding angles</i>. For reference related to the second definition, see <u>Alternate Exterior Angles</u> and <u>Alternate Interior Angles</u>.	7
Counting Number	Any number from the set of numbers represented by $\{1, 2, 3, \dots\}$. A <i>counting number</i> is sometimes referred to as a “natural number” or a “positive <u>integer</u> .”	6*

An asterisk (*) found next to the grade level indicates that the term is not specifically found within the Assessment Anchors and Eligible Content.

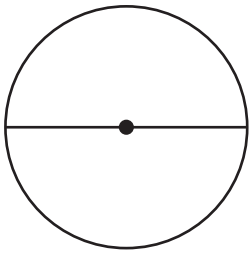
Term	Definition	Grade
Cube	A rectangular solid with exactly six <u>congruent</u> square <u>faces</u>.  Cube	7
Cube Root	One of three equal <u>factors</u> (roots) of a number or <u>expression</u>. The <i>cube root</i> of a number or <u>expression</u> has the same sign (positive/negative) as the number under the radical. Informally, it can be thought of as “the number that, when multiplied by itself, and then multiplied by itself again, has a <u>product</u> equal to a given number.” For example: • $\sqrt[3]{8} = 2$ since $2 \times 2 \times 2 = 8$ • $\sqrt[3]{-64} = -4$ since $-4 \times -4 \times -4 = -64$ • $\sqrt[3]{0.343} = 0.7$ since $0.7 \times 0.7 \times 0.7 = 0.343$ • $\sqrt[3]{125w^6} = 5w^2$ since $5w^2 \times 5w^2 \times 5w^2 = 125w^6$	8
Cylinder	A three-dimensional figure with two circular bases that are <u>parallel</u> and <u>congruent</u>. A <i>cylinder</i> has three <u>faces</u>: the two circular bases and the lateral <u>face</u>.  Cylinder (On the PSSA, it may be assumed all <i>cylinders</i> are right <i>cylinders</i> unless otherwise specified.)	8

Term	Definition	Grade
Decagon	A <u>polygon</u> with exactly 10 sides.  Decagons	4*
Decimal Notation	A number written with base 10 <u>place values</u> that are smaller than one (e.g., tenths, hundredths). These <u>place values</u> are written to the right of a decimal point (e.g., 0.91, 25.624). <i>Decimal notation</i> is different from <u>fraction</u> notation. For example: <i>decimal notation</i>: 0.25 <i>fraction notation</i>: $\frac{1}{4}$	4
Degree (angle)	A unit of measure for the inclination of an <u>angle</u>. It is represented by the symbol $^{\circ}$ and is used in conjunction with the number (e.g., 30° is read as “thirty degrees”). Each <i>degree</i> represents $\frac{1}{360}$ of the <u>angle</u> inclination change from two <u>rays</u> being on top of one another (0°) to a complete revolution (360°) about the shared endpoint of the two <u>rays</u>.	4
Degree (temperature)	A unit of measure for temperature. It is represented by the symbol $^{\circ}$ and is used in conjunction with the number (e.g., -40° is read as either “negative forty degrees” or “forty degrees below zero”). In the Fahrenheit (F) temperature scale, each <i>degree</i> represents $\frac{1}{180}$ of the temperature change between the freezing point of water (32°F) and the boiling point of water (212°F). In the Celsius (C) temperature scale, each <i>degree</i> represents $\frac{1}{100}$ of the temperature change between the freezing point of water (0°C) and the boiling point of water (100°C). A less common name for this temperature scale is centigrade. Celsius is the officially recognized PSSA term.	6

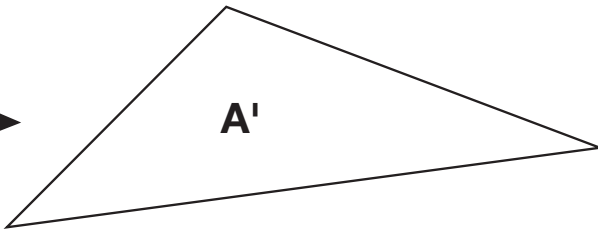
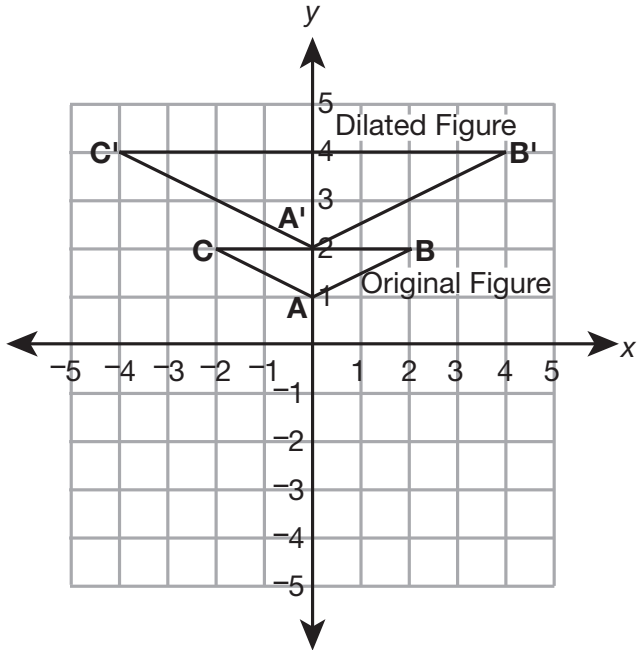
An asterisk (*) found next to the grade level indicates that the term is not specifically found within the Assessment Anchors and Eligible Content.

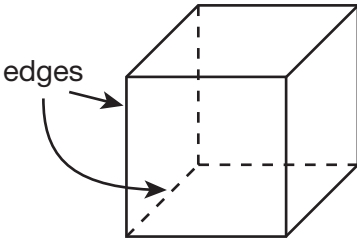
Term	Definition	Grade
Denominator	The <u>divisor</u> in a <u>ratio</u> or <u>fraction</u>. For example: in the <u>fraction</u> $\frac{7}{9}$, 9 is the <i>denominator</i>. Often students first learn the informal definition of <i>denominator</i> as “the bottom number” in a <u>ratio</u> or <u>fraction</u>. See also <u>Numerator</u>.	3
Dependent Events	Two or more events in which the outcome of one event affects or influences the outcome of the other event(s). Sometimes, these events can happen at the same time. For example: • Event 1: Picking a card from a deck; Event 2: Picking a second card from the same deck without replacing the first card. • Event: Selecting two colored markers at the same time from a set of markers. (On the PSSA, it may be assumed that events occurring at the same time is the same as events occurring one at a time without replacement unless otherwise specified.) See also <u>Independent Events</u>.	7*
Dependent Variable	The <u>variable</u> in a <u>relation</u> that represents a value determined by the <u>independent variable</u>. The <i>dependent variable</i> is sometimes referred to as the “output variable.” When a <u>relation</u> is written as a set of <u>ordered pairs</u>, the y-coordinate corresponds to the <i>dependent variable</i>. For example: In the <u>relation</u> $y = 3x - 8$, when the <u>independent variable</u> (x) is replaced by the number 5, the value of the <i>dependent variable</i> (y) is 7. See also <u>Independent Variable</u>.	6

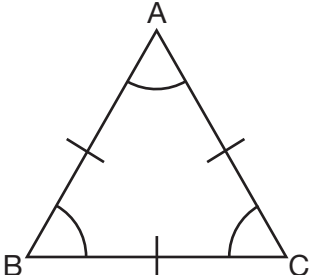
An asterisk (*) found next to the grade level indicates that the term is not specifically found within the Assessment Anchors and Eligible Content.

Term	Definition	Grade
Diameter	A <u>line segment</u> that has endpoints on a <u>circle</u> and passes through the center of the <u>circle</u>. A <i>diameter</i> is a <u>chord</u> that contains the center of the <u>circle</u>.  Diameter In common usage, <i>diameter</i> occasionally refers not only to the <u>line segment</u> but also to the length of the <u>line segment</u> that constitutes the <i>diameter</i>. (On the PSSA, it may be assumed that <i>diameter</i> is the <u>line segment</u>, not the measurement of the line segment unless otherwise specified. If there is a context in which <i>diameter</i> is intended to imply a measurement, the context must clearly, absolutely, and indisputably make that assertion.) See also <u>Radius</u>.	5*
Difference	The result when one number is subtracted by another number (i.e., the “answer” to a subtraction computation). Unless otherwise specified, it may be assumed that the <i>difference</i> is the <u>absolute value</u> of the subtraction (e.g., the <i>difference</i> of 3 and 7 and the <i>difference</i> of 7 and 3 are both 4).	7

An asterisk (*) found next to the grade level indicates that the term is not specifically found within the Assessment Anchors and Eligible Content.

Term	Definition	Grade
Dilation	A nonrigid transformation in which linear measurements may change but the <u>proportional relationships</u> of those measurements are preserved (i.e., length measurements in the dilated image remain uniformly proportional to length measurements in the original figure). In a <i>dilation</i>, all the lengths of a figure are multiplied by a common <u>scale factor</u>. <u>Angle</u> measurements in a <i>dilation</i> do not change. Scale Factor of 2 Original Figure  → Dilated Figure  Dilation All <i>dilations</i> have a <u>point</u> of emanation, or center of <i>dilation</i>. When a shape on a coordinate grid is dilated, the <u>scale factor</u> is applied to the difference between the <u>vertices</u> of the figure and the <u>point</u> of emanation.  Dilation (on a <u>coordinate grid</u>) (On the PSSA, it may be assumed the <u>point</u> of emanation on a <u>coordinate grid</u> is the <u>origin</u> unless otherwise specified.)	8

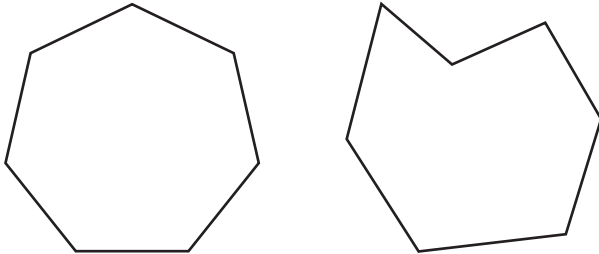
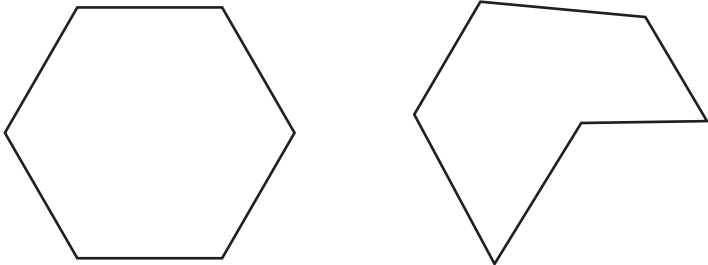
Term	Definition	Grade
Distributive Property	When a single-term <u>expression</u> is being multiplied by a <u>sum</u> or <u>difference</u>, the single-term <u>expression</u> can be multiplied by each term before finding the <u>sum</u> or <u>difference</u>. That is, $a(b + c) = ab + ac$ or $a(b - c) = ab - ac$. For example: $5(7 + 4) = 5(7) + 5(4) = 35 + 20$ $w(9 - 3) = 9w - 3w$	6
Dividend	When dividing one number by another number, the number that is being divided. For example, in the expression $24 \div 6$, the number 24 is the <i>dividend</i>. See also <u>Divisor</u>.	3
Divisor	When dividing one number by another number, the number by which another number is divided. For example, in the expression $24 \div 6$, the number 6 is the <i>divisor</i>. See also <u>Dividend</u>.	4
Edge	The <u>line segment</u> formed by the intersection of two <u>faces</u> of a three-dimensional (solid) figure. For example, a <u>cube</u> has 12 <u>edges</u>.  Edges of a Cube In the picture, each solid <u>line segment</u> and each dashed <u>line segment</u> represents an <u>edge</u> of the <u>cube</u>.	5
Equation	A mathematical sentence or statement relating two equal <u>expressions</u>. When written in mathematical notation, an <i>equation</i> always contains an equal sign (=). Examples of <i>equations</i>: $4 + 15 = 19$ $w + 13 = 17 \times 12$ $\begin{array}{r} 27 \\ -14 \\ \hline 13 \end{array}$ (On the PSSA, an <i>equation</i> may be written either horizontally or vertically.)	3

Term	Definition	Grade
Equilateral Triangle	A <u>triangle</u> where all sides are the same length (i.e., the sides are <u>congruent</u>). Each of the <u>angles</u> in an <i>equilateral triangle</i> is 60°. Thus, the <u>triangle</u> is also equiangular.  Equilateral Triangle A less common name for this <u>triangle</u> is equiangular, since all the angles are equal in measure. <i>Equilateral</i> is the officially recognized PSSA term. See also <u>Isosceles Triangle</u> and <u>Scalene Triangle</u>.	4*
Equivalent	Two or more mathematical statements, <u>expressions</u>, or other representations that have the same value. <i>Equivalent</i> mathematical statements, <u>expressions</u>, or other representations, including geometric figures, are interchangeable in the setting in which they exist. For example: - The <u>expressions</u> $2 + 9$ and $2 + 3 \times 3$ are <i>equivalent expressions</i>. - The sequences $4, 8, 12, 16, \dots$ and $2 \times 2, 2 \times 4, 2 \times 6, 2 \times 8, \dots$ are <i>equivalent sequences</i>. - Geometric figures are <i>equivalent</i> if they are <u>congruent</u>.	3
Expanded Form (Expanded Notation)	A whole or <u>decimal</u> number written as the <u>sum</u> of single-digit <u>multiples</u> of powers of 10. For example: $735.2 = 700 + 30 + 5 + 0.2$ $735.2 = 7 \times 100 + 3 \times 10 + 5 \times 1 + 2 \times 0.1$ (or, $735.2 = 7 \times 100 + 3 \times 10 + 5 \times 1 + 2 \times \frac{1}{10}$) $735.2 = 7 \times 10^2 + 3 \times 10^1 + 5 \times 10^0 + 2 \times 10^{-1}$ The phrase <i>expanded notation</i> is equivalent to and interchangeable with <i>expanded form</i>.	4

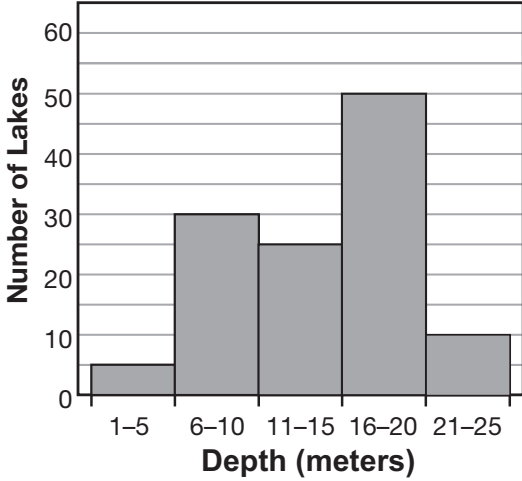
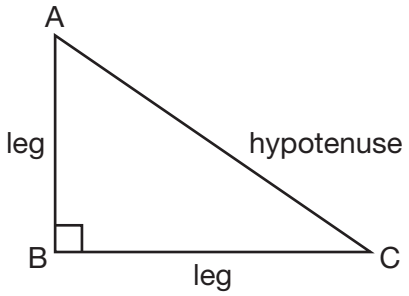
An asterisk (*) found next to the grade level indicates that the term is not specifically found within the Assessment Anchors and Eligible Content.

Term	Definition	Grade
Experimental Probability	A likelihood of an outcome based on the number of favorable outcomes that have occurred compared to the total number of outcomes that have occurred. An <i>experimental probability</i> is based on a series of trials. For example, if a coin lands heads on 17 of the 20 times it is flipped, the <i>experimental probability</i> of this coin landing heads is $\frac{17}{20}$. See also <u>Theoretical Probability</u>.	8*
Expression	A number or <u>variable</u>, the power of a number or <u>variable</u>, or the <u>sum</u>, <u>difference</u>, <u>product</u>, or <u>quotient</u> of a combination of numbers, <u>variables</u>, and/or powers of a number or <u>variable</u>. Examples of <i>expressions</i>: • $15xy$ • $23 \times 6 + 51$ • $3r - 28$ • $\sqrt{38}$ <i>Expressions</i> do not contain relations such as =, >, <, etc. <i>Expressions</i> are the elements that form mathematical sentences, <u>equations</u>, or inequalities, but they are not mathematical sentences, <u>equations</u>, or inequalities.	6
Face	A two-dimensional (plane) figure that is one side of a three-dimensional (solid) figure. The <i>faces</i> make up the surface of the three-dimensional (solid) figure. For example, the six <u>squares</u> that form a <u>cube</u> are the <i>faces</i> of the <u>cube</u>.	3*
Fact Family	A set of related addition and subtraction <u>equations</u> or related multiplication and division <u>equations</u> using the same numbers. For example: • $9 + 6 = 15$, $6 + 9 = 15$, $15 - 9 = 6$, $15 - 6 = 9$ • $3 \times 4 = 12$, $4 \times 3 = 12$, $12 \div 3 = 4$, $12 \div 4 = 3$	1*
Factor	A <u>whole number</u> that can divide another <u>whole number</u> with no remainder. For example, 1, 3, 5, and 15 are <i>factors</i> of 15.	3
Factor Pair	A pair of <u>whole numbers</u> with a <u>product</u> equal to the number under consideration. For example, the numbers 2 and 7 are a <i>factor pair</i> of 14 since $2 \times 7 = 14$.	4
Fraction	A <u>ratio</u> of two values, numbers, or <u>expressions</u>. It is written in the form $\frac{a}{b}$, where b is not equal to 0.	3
Function	A <u>relation</u> in which each input value (<u>independent variable</u>) is associated with exactly one output value (<u>dependent variable</u>).	4

An asterisk (*) found next to the grade level indicates that the term is not specifically found within the Assessment Anchors and Eligible Content.

Term	Definition	Grade
Greatest Common Factor (GCF)	The greatest <u>factor</u> that two or more numbers have in common. For example: • The <i>greatest common factor</i> of 4 and 10 is 2. • The <i>greatest common factor</i> of 12, 30, and 42 is 6. • The <i>greatest common factor</i> of 8 and 15 is 1.	6
Heptagon	A <u>polygon</u> with exactly 7 sides.  Heptagons Less common names for this <u>polygon</u> are septagon and septilateral. <i>Heptagon</i> is the officially recognized PSSA term.	4*
Hexagon	A <u>polygon</u> with exactly 6 sides.  Hexagons	4*

An asterisk (*) found next to the grade level indicates that the term is not specifically found within the Assessment Anchors and Eligible Content.

Term	Definition	Grade
Histogram	A type of data display that represents a frequency distribution. The class intervals (buckets) represent numerical data. The class intervals are located on the x-axis and form the bases of contiguous rectangular bars. Frequencies are listed on the y-axis. The class interval representation of numerical data rather than categorical data, and contiguous bars rather than nonintersecting bars, are distinguishing features of a <i>histogram</i> in contrast to a <i>bar graph</i>. Maximum Lake Depth  Histogram	6
Hypotenuse	The side opposite the 90° (right) <u>angle</u> in a <u>right triangle</u>. The <i>hypotenuse</i> is also the longest side in a <u>right triangle</u>.  Hypotenuse of a Right Triangle See also <u>Leg (of a Right Triangle)</u>.	8*

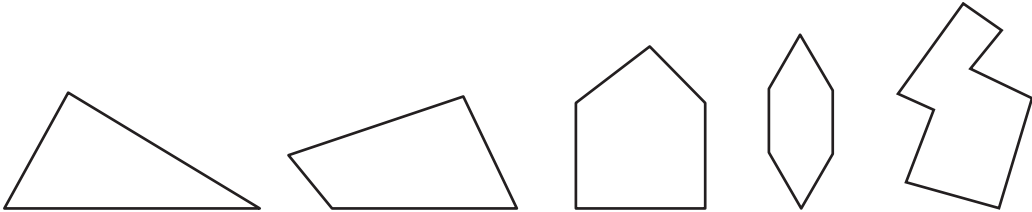
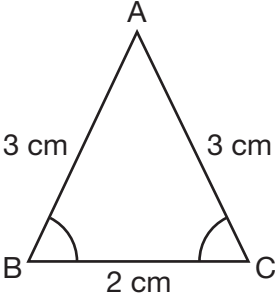
An asterisk (*) found next to the grade level indicates that the term is not specifically found within the Assessment Anchors and Eligible Content.

Term	Definition	Grade
Identity Property of Multiplication	The property that asserts the <u>product</u> of an original <u>factor</u> times one is equal to the original <u>factor</u>. In less formal mathematical phrasing, it is the property that states whenever a number/<u>variable</u>/<u>expression</u> is multiplied by one, the <u>product</u> is identical to the original number/<u>variable</u>/<u>expression</u>. For example: • $93 \times 1 = 93$ • $1(3w + 9) = (3w + 9)$	7*
Identity Property of Addition	The property that asserts the <u>sum</u> of an original <u>addend</u> plus zero is equal to the original <u>addend</u>. In less formal mathematical phrasing, it is the property that states whenever a number/<u>variable</u>/<u>expression</u> is added to zero, the <u>sum</u> is identical to the original number/<u>variable</u>/<u>expression</u>. For example: • $93 + 0 = 93$ • $(3w + 9) + 0 = (3w + 9)$	7*
Independent Events	Two or more events, in which the outcome of one event does not influence or affect the outcome of the other event(s). For example: • Event 1: Flipping a coin; Event 2: Picking a card from a deck • Event 1: Selecting a colored marker; Event 2: Walking to school See also <u>Dependent Events</u>.	7
Independent Variable	The <u>variable</u> that is used to determine the value of a <u>relation</u>. The <i>independent variable</i> is often referred to as the “input variable” of a <u>relation</u>. When a <u>relation</u> is written as a set of <u>ordered pairs</u>, the x-coordinate corresponds to the <i>independent variable</i>. The set of values that can be used to replace the <i>independent variable</i> is named the “domain” of the <u>relation</u>. For example: To determine the value of the <u>relation</u> $y = 3x - 8$, input values replace the <i>independent variable</i> (x). The values of the <u>equation</u> that result from substituting numbers for the <i>independent variable</i> are often referred to as dependent or output values. See also <u>Dependent Variable</u>.	6

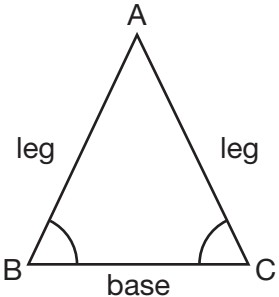
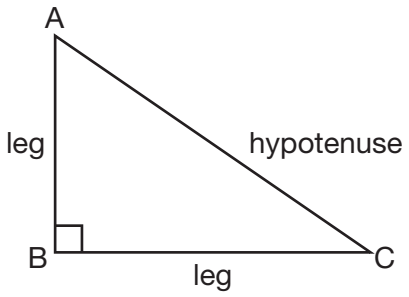
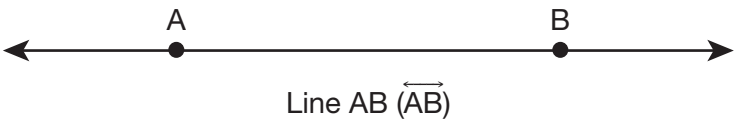
An asterisk (*) found next to the grade level indicates that the term is not specifically found within the Assessment Anchors and Eligible Content.

Term	Definition	Grade
Inequality	A mathematical sentence that contains an inequality symbol (i.e., $>$, $<$, $\geq$, $\leq$, or $\neq$). It compares two quantities. The symbol $>$ represents greater than, the symbol $<$ represents less than, the symbol $\geq$ represents greater than or equal to, the symbol $\leq$ represents less than or equal to, and the symbol $\neq$ represents not equal to (the symbol $\neq$ is often used to express which values are not available to be used for a particular <u>expression</u> or <u>equation</u>). For example: $3 + 4 > 6$ $7 + 2 < 11 - \square$	6
Integer	A <u>counting number</u> , the <u>additive inverse</u> of a <u>counting number</u> , or zero. Any number from the set of numbers represented by $\{\dots, -3, -2, -1, 0, 1, 2, 3, \dots\}$.	4*
Interquartile Range	The <u>difference</u> between the third <u>quartile</u> and the first <u>quartile</u> in an ordered set of numerical data. It represents the spread of the middle 50% of a set of data. For example: For the data set $\{2, 5, 7, 12, 17, 22, 23\}$, the first <u>quartile</u> value is 5 and the third <u>quartile</u> value is 22; so, the <i>interquartile range</i> is $22 - 5 = 17$. See also <u>Quartile</u>.	6
Irrational Number	A number that cannot be precisely represented as a <u>fraction</u> written with <u>integers</u>. In relation to other real numbers, an <i>irrational number</i> is any real number that is not a <u>rational number</u>. When an <i>irrational number</i> is written in <u>decimal</u> notation, the numeral has an infinite number of non-repeating digits or non-repeating sequence of digits to the right of the decimal point. For example: $\sqrt{2}$ π e (base of the natural logarithm) See also <u>Rational Number</u>.	8

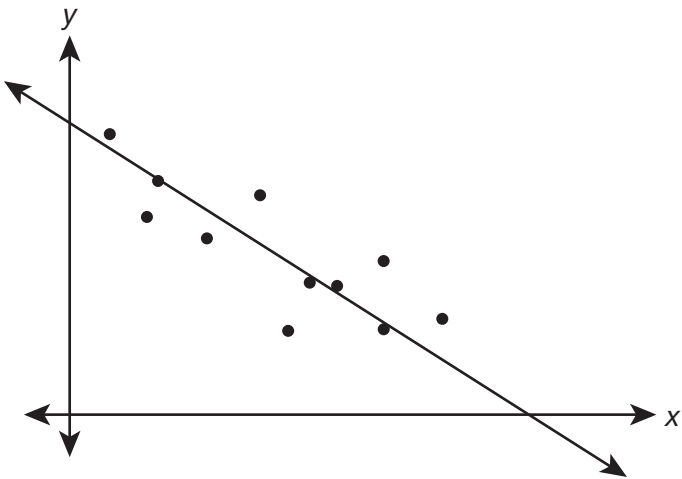
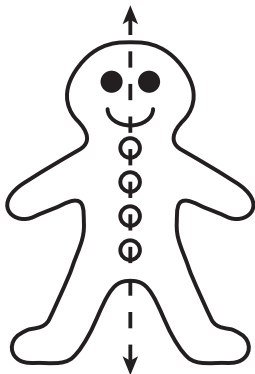
An asterisk (*) found next to the grade level indicates that the term is not specifically found within the Assessment Anchors and Eligible Content.

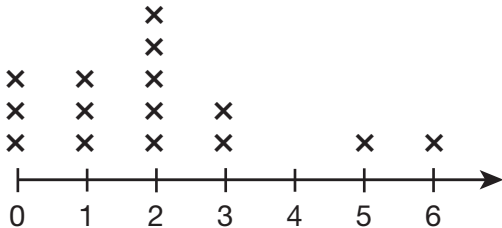
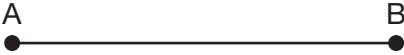
Term	Definition	Grade
Irregular Polygon	A <u>polygon</u> that does not have all <u>congruent</u> sides and all <u>congruent</u> angles. An <i>irregular polygon</i> may have <u>congruent</u> sides and/or <u>congruent</u> angles. Essentially, an <i>irregular polygon</i> is any <u>polygon</u> that is not a <u>regular polygon</u>.  Irregular Polygons Two special types of <i>irregular polygons</i> are <u>scalene triangles</u> and <u>trapezoids</u>.	6
Isosceles Triangle	A <u>triangle</u> with two <u>congruent</u> sides, which are called the <u>legs</u> of the <i>isosceles triangle</i>. The <u>angles</u> opposite the two <u>legs</u> (called <i>base angles</i>) are also <u>congruent</u>.  Isosceles Triangle An <u>equilateral triangle</u> is a special type of <i>isosceles triangle</i>. See also <u>Equilateral Triangle</u> and <u>Scalene Triangle</u>.	4*
Least Common Denominator (LCD)	The <u>least common multiple</u> of the <u>denominators</u> of two or more <u>fractions</u>. For example: - The <i>least common denominator</i> of $\frac{1}{4}$ and $\frac{3}{10}$ is 20. - The <i>least common denominator</i> of $\frac{3}{10}$, $\frac{5}{12}$, and $\frac{19}{30}$ is 60. - The <i>least common denominator</i> of $\frac{3}{4}$ and $\frac{3}{21}$ is 84.	4*

An asterisk (*) found next to the grade level indicates that the term is not specifically found within the Assessment Anchors and Eligible Content.

Term	Definition	Grade
Least Common Multiple (LCM)	The least <u>whole number</u> that is a common <u>multiple</u> of two or more numbers. For example: • The <i>least common multiple</i> of 4 and 10 is 20. • The <i>least common multiple</i> of 10, 12, and 30 is 60. • The <i>least common multiple</i> of 4 and 21 is 84.	6
Leg (of an Isosceles Triangle)	Each of the two <u>congruent sides</u> of an <u>isosceles triangle</u>. In an <u>equilateral triangle</u>, any pair of sides may be considered the <i>legs</i> of the <u>triangle</u>.  Legs of an Isosceles Triangle	4*
Leg (of a Right Triangle)	Each of the two sides that form the <u>right angle</u> in a <u>right triangle</u>.  Legs of a Right Triangle See also <u>Hypotenuse</u>.	4*
Line	An infinitely long, straight set of <u>points</u>. Informally, it can be thought of as a path extending in opposite directions with no endpoints. A <i>line</i> is identified by any two unique <u>points</u> on the <i>line</i>.  See also <u>Line Segment</u>.	3

An asterisk (*) found next to the grade level indicates that the term is not specifically found within the Assessment Anchors and Eligible Content.

Term	Definition	Grade
Line of Best Fit	A <u>line</u> drawn on a <u>scatter plot</u> to best estimate the relationship between two sets of data. It describes the trend of the data. Different measures are possible to describe the <i>line of best fit</i>. The most common is a <u>line</u> that minimizes the <u>sum</u> of the squares of the errors (vertical distances) from the data points to the <u>line</u>.  Line of Best Fit	8
Line of Symmetry	A <u>line</u> that divides a figure into two parts that are <u>congruent</u> mirror images of each other.  Line of Symmetry See also <u>Reflection</u>.	4

Term	Definition	Grade
Line Plot	A frequency distribution plot in which the data are single <u>points</u> on a <u>number line</u> and the frequencies are represented by dots, x's, or similar notation. The data may be categorical or numerical. Unless otherwise specified, it may be assumed that each mark (dot, x, or similar notation) represents a value of 1. Baseball Players  Home Runs Line Plot	3
Line Segment	A portion or subset of a <u>line</u> bounded by two endpoints. Informally, a <u>line segment</u> can be conceptualized as two <u>points</u> on a line and all the <u>points</u> between them. A <u>line segment</u> is not a <u>line</u>. A <u>line segment</u> is identified by its endpoints.  Line Segment AB ($\overline{AB}$) See also <u>Line</u>.	4
Linear Relationship	A mathematical relationship between two <u>variables</u> that can be represented by a linear <u>equation</u> (e.g., $Ax + By = C$). If <u>points</u> represent a <u>linear relationship</u>, the graph of those <u>points</u> is a straight <u>line</u>. If a graph is a straight <u>line</u>, the <u>points</u> on the <u>line</u> represent a <u>linear relationship</u>. For example: - Distance traveled (d) in 6 hours at a constant speed (s): $d + ^{-}6s = 0$ or $d = 6s$ - Gallons of water (w) in a container (starting <u>volume</u> = 3 gallons) when g gallons of water are added per hour for 22 hours: $w + ^{-}22g = 3$ or $w = 22g + 3$	8

Term	Definition	Grade
Magnitude	A scalar (no units assigned) associated with a quantity. <i>Magnitude</i> is always a positive number. In general, <i>magnitude</i> is found by determining the <u>absolute value</u> of the numerical portion of a quantity. For example: - The <i>magnitude</i> of 1,200 feet above sea level is 1,200. - The <i>magnitude</i> of $18\frac{1}{2}$ pounds is $18\frac{1}{2}$. - The <i>magnitude</i> of the number 34.931 is 34.931. See also <u>Absolute Value</u>.	6
Maximum	The greatest number in a set of data. For example: - For the data set {5, 7, 12, 23, 29}, the <i>maximum</i> is 29. - For the data set {1, 7, 9, 11}, the <i>maximum</i> is 11. See also <u>Minimum</u>.	6*
Mean	A number found by dividing the <u>sum</u> of a set of numbers by the number of <u>addends</u>. The terms <i>mean</i> and <u>average</u> are equivalent. For example: - For the data set {1, 7, 9, 11}, the <u>sum</u> of the 4 data points is $1 + 7 + 9 + 11 = 28$, so the <i>mean</i> is $28 \div 4 = 7$. - For the data set {5, 7, 12, 23, 29}, the <u>sum</u> of the 5 data points is $5 + 7 + 12 + 23 + 29 = 76$, so the <i>mean</i> is $76 \div 5 = 15.2$. See also <u>Median</u> and <u>Mode</u>.	6
Mean Absolute Deviation	The <u>average</u> of the <u>differences</u> between each data point in a data set and the <u>mean</u>. For example: - For the data set {1, 7, 9, 11}, the <u>mean</u> of the set is 7 and the <u>sum</u> of the <u>differences</u> between each data point and 7 is $6 + 0 + 2 + 4 = 12$; so, the <i>mean absolute deviation</i> is $12 \div 4 = 3$. - For the data set {5, 7, 12, 23, 29}, the <u>mean</u> of the set is 15.2 and the <u>sum</u> of the <u>differences</u> between each data point and 15.2 is $10.2 + 8.2 + 3.2 + 7.8 + 13.8 = 43.2$; so, the <i>mean absolute deviation</i> is $43.2 \div 5 = 8.64$.	6

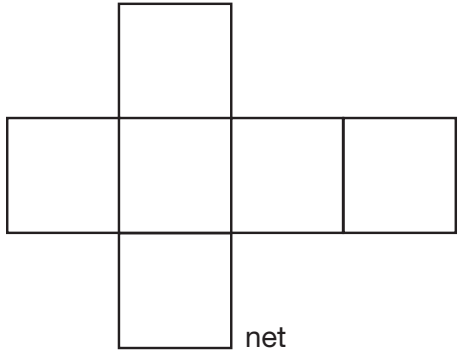
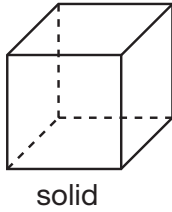
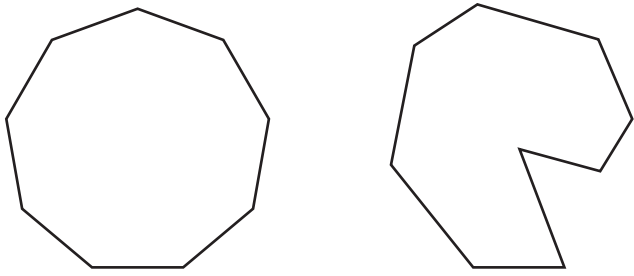
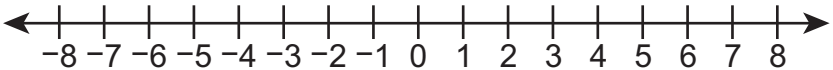
An asterisk (*) found next to the grade level indicates that the term is not specifically found within the Assessment Anchors and Eligible Content.

Term	Definition	Grade
Measures of Center	Statistical measures that are intended to provide numerical representations of the center of a set of numerical data. The phrases <i>measure of center</i> and <i>measure of central tendency</i> are interchangeable. For example: • <u>Mean</u> • <u>Median</u> • <u>Mode</u> • <u>Midrange</u> See also <u>Measures of Variability</u>.	6
Measures of Variability	Statistical measures that are intended to provide numerical representations of the variability of a set of numerical data. For example: • <u>Range</u> • <u>Interquartile Range</u> • <u>Mean Absolute Deviation</u> • <u>Standard Deviation</u> See also <u>Measures of Center</u>.	6
Median	The middle number in a set of data ordered from least to greatest (or from greatest to least). If the data set consists of an even number of entries, the <i>median</i> is the <u>mean</u> of the two middle entries in the list. For example: • For the data set {5, 7, 12, 23, 29}, the middle number of the ordered set is 12, so the <i>median</i> is 12. • For the data set {1, 7, 9, 11}, the middle numbers are 7 and 9, so the <i>median</i> is the <u>mean</u> of 7 and 9, which is 8. See also <u>Mean</u> and <u>Mode</u>.	6
Minimum	The least number in a set of data. For example: • For the data set {5, 7, 12, 23, 29}, the <i>minimum</i> is 5. • For the data set {1, 7, 9, 11}, the <i>maximum</i> is 11, <i>minimum</i> is 1. See also <u>Maximum</u>.	6*

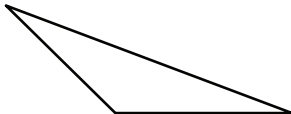
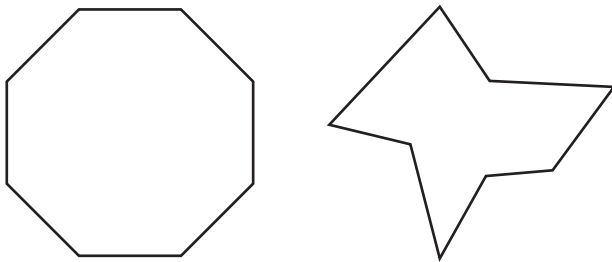
An asterisk (*) found next to the grade level indicates that the term is not specifically found within the Assessment Anchors and Eligible Content.

Term	Definition	Grade
Mode	The number that occurs most often in a set of data. A set of data may have more than one <i>mode</i>, or it may have no <i>mode</i>. For example: - For the data set {5, 7, 12, 12, 29}, 12 appears the most often, so the <i>mode</i> is 12. - For the data set {1, 1, 6, 6, 6, 11, 11, 11, 13, 17}, both 6 and 11 appear the most often, so the <i>modes</i> are 6 and 11 (note that 1 is not a <i>mode</i> since it only appears twice). - For the data set {1, 7, 9, 11}, no number appears more than once, so the data set does not have a <i>mode</i>. See also <u>Mean</u> and <u>Median</u>.	6
Multiple	A number that is divisible by another number with no remainder. For example: 3, 6, 9, 12, and 15 are all <i>multiples</i> of 3 1.75, 3.5, 5.25, 7, and 8.25 are all <i>multiples</i> of 1.75 <i>Multiples</i> of a number can be found by multiplying the given number by <u>whole numbers</u>.	4
Mutually Exclusive Events	Events that preclude each other. <i>Mutually exclusive events</i> cannot occur simultaneously. <i>Mutually exclusive events</i> are always <u>dependent events</u>. For example: - Flipping a coin one time and getting heads and tails. The coin landing heads meant that it could not also have landed tails and vice versa. - Arriving 10 minutes early and arriving 10 minutes late. If you arrived 10 minutes early, you did not arrive 10 minutes late and vice versa.	7*
Negative Number	The <u>opposite</u> of a positive number (i.e., any number less than 0).	6

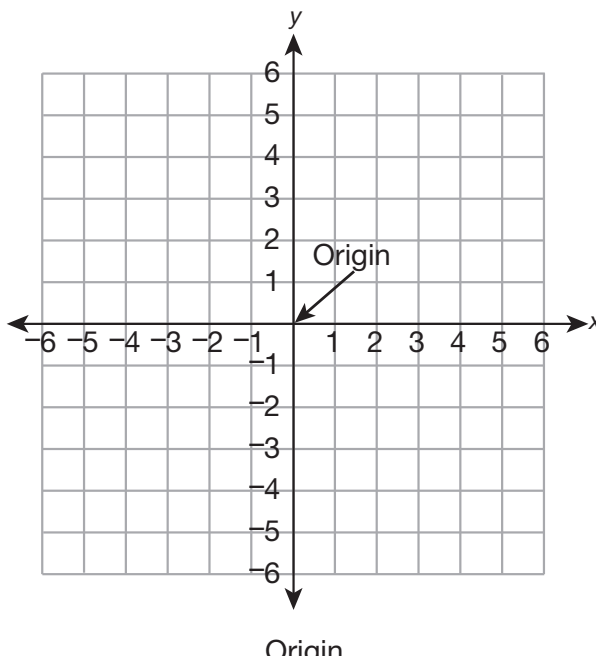
An asterisk (*) found next to the grade level indicates that the term is not specifically found within the Assessment Anchors and Eligible Content.

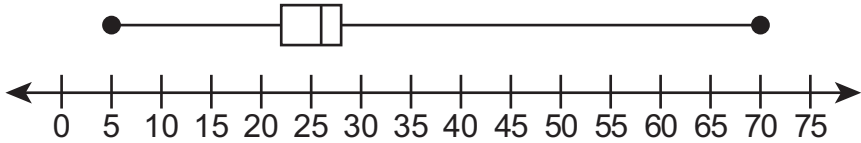
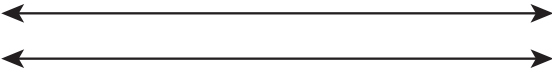
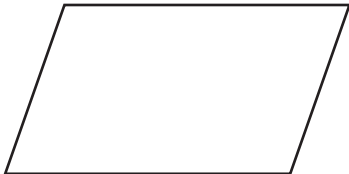
Term	Definition	Grade
Net	A two-dimensional shape or figure that can be folded to form a three-dimensional (solid) shape or object. It is usually the case that the fold lines are marked on the <i>net</i>. The total <u>area</u> of the <i>net</i> is equal to the total <u>surface area</u> of the associated three-dimensional (solid) shape or object.   Net	6
Nonagon	A <u>polygon</u> with exactly 9 sides.  Nonagons	4*
Number Line	A graph that represents the real numbers as ordered <u>points</u> on a <u>line</u>. A <i>number line</i> may be either horizontal (left and right) or vertical (up and down). Starting at zero, the positive numbers progress to the right (or up) and the negative numbers progress to the left (or down).  <i>Number lines</i> serve as the bases of <u>line plots</u> and <u>box-and-whisker plots</u>. In a coordinate grid, a horizontal <i>number line</i> is used for the <u>x-axis</u> and a vertical <i>number line</i> is used for the <u>y-axis</u>.	3
Number Sentence	A mathematical statement that is either an <u>equation</u> or an <u>inequality</u>. A <i>number sentence</i> is composed of <u>expressions</u>, but it is not an <u>expression</u>. When written, a <i>number sentence</i> always contains a relation symbol (e.g., =, ≤, >).	3

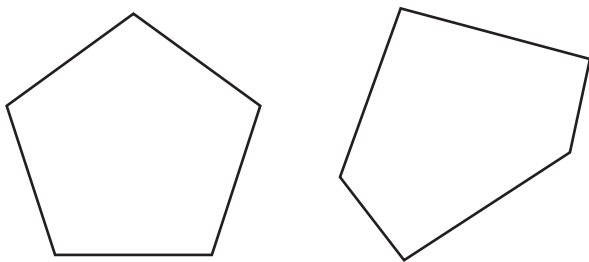
An asterisk (*) found next to the grade level indicates that the term is not specifically found within the Assessment Anchors and Eligible Content.

Term	Definition	Grade
Numerator	The <u>dividend</u> in a <u>ratio</u> or <u>fraction</u>. For example: in the <u>fraction</u> $\frac{7}{9}$, 7 is the <i>numerator</i>. Often students first learn the informal definition of <i>numerator</i> as “the top number” in a <u>ratio</u> or <u>fraction</u>. See also <u>Denominator</u>.	3
Numerical Expression	A mathematical <u>expression</u> that does not contain a <u>variable</u>. For example: • $679 - 12(45)$ • 7^3 See also <u>Algebraic Expression</u>.	5
Obtuse Angle	An <u>angle</u> with a measure greater than 90° and less than 180° .	4
Obtuse Triangle	A <u>triangle</u> in which an interior <u>angle</u> is an <u>obtuse angle</u>.  Obtuse Triangle See also <u>Acute Triangle</u> and <u>Right Triangle</u>.	5*
Octagon	A <u>polygon</u> with exactly 8 sides.  Octagons	4*
Opposite (of a Number)	The <u>additive inverse</u> of a number. For example: • The <i>opposite</i> of 458 is -458. • The <i>opposite</i> of $-\frac{3}{7}$ is $\frac{3}{7}$.	6
Order of Operations	The rules that specify the order in which operations (e.g., $+$, $-$, $\times$, $\div$, $\sqrt{\quad}$) are performed when more than one operation in a <u>numerical expression</u> or an <u>algebraic expression</u> is required.	3

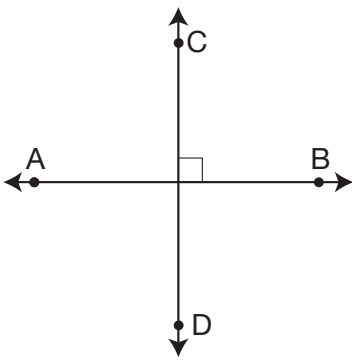
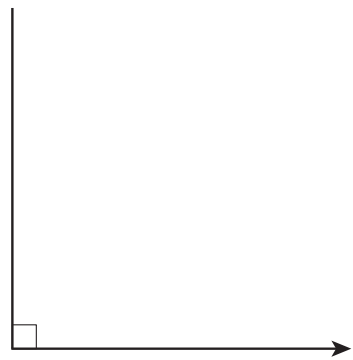
An asterisk (*) found next to the grade level indicates that the term is not specifically found within the Assessment Anchors and Eligible Content.

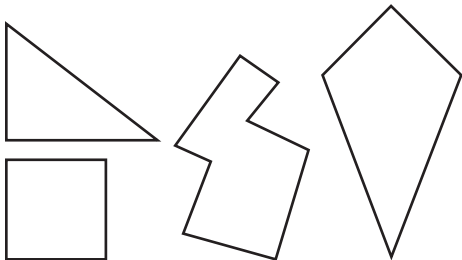
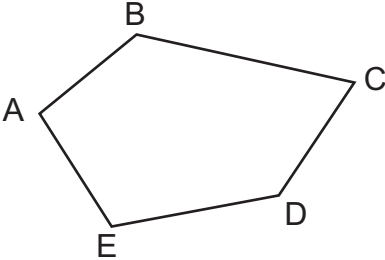
Term	Definition	Grade								
Ordered Pair	A pair of numbers or other elements in which the order of recording is consequential (i.e., order makes a difference). <i>Ordered pairs</i> can be used to locate <u>points</u> on a <u>coordinate grid</u>. <i>Ordered pairs</i>, both numerical and non-numerical, are written within a set of parentheses or in an x-y table. For example: • (5, 9) • (insect, ant) • $(x + 2, 3 \times w)$ <table><tr><th>x</th><th>y</th></tr><tr><td>-1</td><td>0</td></tr><tr><td>0</td><td>2</td></tr><tr><td>1</td><td>4</td></tr></table> • On a <u>coordinate grid</u>, the <i>ordered pair</i> (a, b) refers to a <u>point</u> at the intersection of the vertical line through a on the <u>x-axis</u> and the horizontal line through b on the <u>y-axis</u>.	x	y	-1	0	0	2	1	4	5
x	y									
-1	0									
0	2									
1	4									
Origin	The intersection of the <u>perpendicular axes</u> of a <u>coordinate grid</u>. The <i>origin</i> is designated by the <u>ordered pair</u> (0, 0).  The diagram shows a coordinate grid with x and y axes. Both axes are labeled from -6 to 6. The origin, where the two axes intersect, is labeled with an arrow and the word 'Origin'.	5								

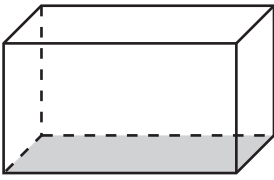
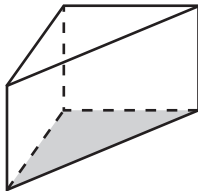
Term	Definition	Grade
Outlier	A value that is noticeably greater than or less than the observed or expected values in the data set (i.e., a value that, in the judgment of an observer, is excessively aberrant). Unless otherwise specified, it may be assumed that an <i>outlier</i> is a value in a data set that is 1.5 times the <u>interquartile range</u> less than the first <u>quartile</u> or 1.5 times the <u>interquartile range</u> greater than the third <u>quartile</u>. For example: the data set {5, 18, 22, 23, 24, 26, 27, 27, 28, 33, 70} has two <i>outliers</i>: • 1st <u>quartile</u> = 22, 3rd <u>quartile</u> = 28 • <u>Interquartile range</u> = $(28 - 22) = 6$ • 1.5 times the <u>interquartile range</u> = $1.5(6) = 9$ • $70 - 28 > 9$ and $22 - 5 > 9$; therefore, both 70 and 5 are <i>outliers</i>. Visually, an <i>outlier</i> can be seen in a <u>box-and-whisker plot</u> when a whisker is at least 1.5 times as long as the box representing the data between the 1st <u>quartile</u> and the 3rd <u>quartile</u>. It should be noted that only the <u>minimum</u> value and/or the <u>maximum</u> value can be identified as <i>outliers</i> using this method. For example, in the <u>box-and-whisker plot</u> shown below, the box representing the data between the 1st <u>quartile</u> and the 3rd <u>quartile</u> has a length of 6, the whisker representing the lower <u>quartile</u> of the data has a length of 17, and the whisker representing the upper <u>quartile</u> of the data has a length of 42. 	8
Parallel Lines	Two or more <u>lines</u> that lie in the same <u>plane</u> and do not intersect.  Parallel Lines For illustration purposes, railroad tracks are often used to represent <i>parallel lines</i>, whereas a bridge and river under the bridge are often used to represent skew <u>lines</u> (they do not intersect, but they are not parallel).	4
Parallelogram	A <u>quadrilateral</u> in which opposite sides are parallel and <u>congruent</u>.  Parallelogram	5

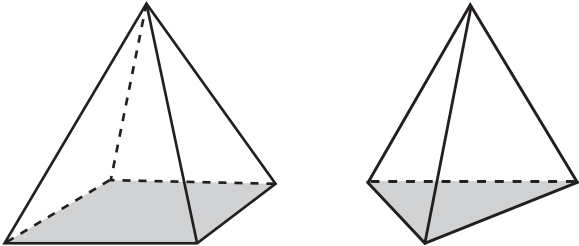
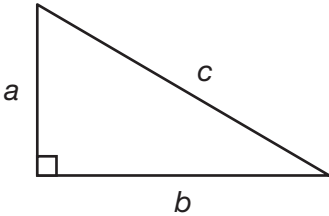
Term	Definition	Grade
Pentagon	A <u>polygon</u> with exactly 5 sides.  Pentagons	3
Perfect Cube	A number for which the <u>cube root</u> is an <u>integer</u>. For example: • Since $\sqrt[3]{27} = 3$, 27 is a <i>perfect cube</i>. • Since $\sqrt[3]{-125} = -5$, -125 is a <i>perfect cube</i>. • Since $\sqrt[3]{600} \approx 8.434...$, 600 is not a <i>perfect cube</i>. <i>Perfect cubes</i> can be determined by cubing an <u>integer</u> (e.g., $(-8)^3 = -512$, so -512 is a <i>perfect cube</i>).	8
Perfect Square	A number for which the <u>square root</u> is an integer. For example: • Since $\sqrt{49} = 7$, 49 is a <i>perfect square</i>. • Since $\sqrt{3} \approx 1.732...$, 3 is not a <i>perfect square</i>. • Since $\sqrt{0.25} = 0.5$, 0.25 is not a <i>perfect square</i>. <i>Perfect squares</i> can be determined by squaring <u>whole numbers</u> (e.g., $15^2 = 225$, so 225 is a <i>perfect square</i>).	8
Perimeter	The distance around a closed 2-dimensional figure or shape. In the case of a <u>circle</u>, the distance around is the <u>circumference</u>.	3
Permutation	An ordered arrangement or set of elements. In contrast to a <u>combination</u> of elements (in which order makes no difference), changing the order changes the <i>permutation</i> of elements. For example: even though they contain the same elements, the arrangements {2, 4, 6} and {4, 2, 6} are two unique <i>permutations</i>. An example of three unique <i>permutations</i> of the same elements is {apple, cat, car}, {car, cat, apple}, and {cat, car, apple}.	6*

An asterisk (*) found next to the grade level indicates that the term is not specifically found within the Assessment Anchors and Eligible Content.

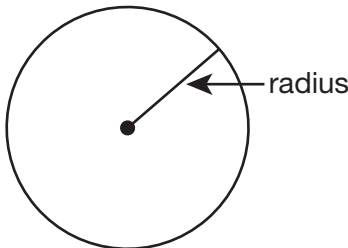
Term	Definition	Grade										
Perpendicular	Two geometric figures (e.g., <u>lines</u>, <u>segments</u>, <u>rays</u>) that intersect to form at least one <u>right angle</u>.   Perpendicular Lines Perpendicular Segment and Ray	4										
Pictograph	A chart that uses pictures or drawings to represent quantities. In the example shown below, pictures of lemons are used to represent the number of gallons of lemonade served. Lemonade Served at the Carnival <table><tr><th>Day</th><th>Number of Gallons</th></tr><tr><td>Monday</td><td> </td></tr><tr><td>Tuesday</td><td>   </td></tr><tr><td>Wednesday</td><td>     </td></tr><tr><td>Thursday</td><td>    </td></tr></table> Key:  = 1 gallon Pictograph	Day	Number of Gallons	Monday	 	Tuesday	   	Wednesday	     	Thursday	    	3
Day	Number of Gallons											
Monday	 											
Tuesday	   											
Wednesday	     											
Thursday	    											
Place Value	The value of the place a digit occupies in a number. The <i>place value</i> is independent of the value of the digit occupying the place. For example, in the <u>decimal</u> number 748.56, the digit 7 occupies the hundreds place (i.e., the <i>place value</i> of the third place left of the decimal point is 10² or 100).	3										

Term	Definition	Grade
Plane	A set of <u>points</u> that forms a flat surface that extends infinitely in all directions. It has length and width but no height. Informal examples that may aid students in conceptualizing a <i>plane</i>: • An infinitely thin sheet of glass that extends infinitely far in all directions • The surface of an infinitely long and wide tabletop—not the tabletop itself, only the infinitely thin surface of the tabletop.	3
Point	A figure with no dimensions—it has no length, width, or height. A <i>point</i> is generally indicated with a single dot and is labeled with a single capital letter (e.g., point P). When the <i>point</i> appears at the end of a figure (e.g., a <u>line segment</u> or a <u>ray</u>), it is referred to as an <i>endpoint</i>. See also <u>Ordered Pair</u> and <u>Vertex</u>.	4
Polygon	A bounded (enclosed) two-dimensional figure. Each side of the figure is a <u>line segment</u>. Each side intersects exactly two other sides at endpoints. Each <u>point</u> of intersection is the intersection of exactly two sides. A <i>polygon</i> is identified by the labels of its consecutive <u>vertices</u>.   Polygons Polygon ABCDE	3
Positive Number	Any number greater than 0.	6
Prime Number	A <u>whole number</u> greater than 1 with exactly two <u>factors</u>, 1 and the number itself. For example: • Since 7 has only two <u>factors</u> (1 and 7), 7 is a <i>prime number</i>. • Since 9 has more than two <u>factors</u> (1, 3, and 9), 9 is not a <i>prime number</i>. There are infinitely many <i>prime numbers</i>.	4

Term	Definition	Grade
Prism	A three-dimensional (solid) figure that has two <u>congruent</u> and parallel <u>faces</u> that are <u>polygons</u> called bases. The remaining <u>faces</u>, called lateral faces, are <u>parallelograms</u> (often <u>rectangles</u>). <i>Prisms</i> are named by the shape of their bases.   Rectangular Prism Triangular Prism (On the PSSA, it may be assumed all <i>prisms</i> are <i>right prisms</i> unless otherwise specified.)	5
Product	The result when one number is multiplied by one or more numbers (i.e., the answer to a multiplication computation).	3
Proportion	An <u>equation</u> showing the equality of two <u>ratios</u>. For example: $\frac{3}{4} = \frac{x}{16}$	6
Proportional Relationship	Relationships between two variable quantities in which their <u>ratio</u> remains <u>equivalent</u>. For example: • <u>Rate</u> of travel relationships in which the <u>ratios</u> of distance to time may be written differently but remain <u>equivalent</u> (e.g., $\frac{550 \text{ miles}}{10 \text{ hours}} = \frac{220 \text{ miles}}{4 \text{ hours}}$) • <u>Price</u> relationships in which the <u>ratios</u> of cost to quantity purchased may be written differently but remain <u>equivalent</u> (e.g., $\frac{\\$13.50}{5 \text{ gallons}} = \frac{\\$8.10}{3 \text{ gallons}}$)	6

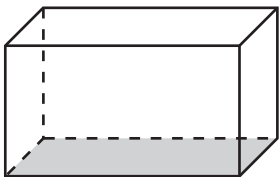
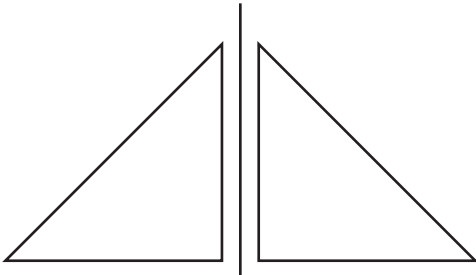
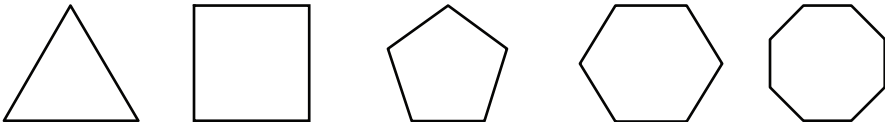
Term	Definition	Grade
Pyramid	A three-dimensional (solid) figure with a polygonal base and with triangular <u>faces</u> that have a common <u>vertex</u>. <i>Pyramids</i> are named by the shape of their bases.  Square Pyramid Triangular Pyramid (On the PSSA, it may be assumed all <i>pyramids</i> are <i>right pyramids</i> unless otherwise specified.)	7
Pythagorean Theorem	A formula that relates the lengths of the two <u>legs</u> and the <u>hypotenuse</u> of any <u>right triangle</u>. The <i>Pythagorean theorem</i> states the following: If a <u>triangle</u> is a <u>right triangle</u> and has two <u>legs</u> with lengths a and b and a <u>hypotenuse</u> with length c, then $a^2 + b^2 = c^2$. The converse is also true: If a <u>triangle</u> has sides with lengths a, b, and c, such that $a^2 + b^2 = c^2$, then the <u>triangle</u> is a <u>right triangle</u>. This statement is often referred to as the converse of the <i>Pythagorean theorem</i>.  $a^2 + b^2 = c^2$	8

Term	Definition	Grade
Quadrant	One of the four regions into which the <u>perpendicular axes</u> divide a <u>coordinate grid</u>. Beginning with the region in which all <u>ordered pairs</u> have only positive coordinate values (the top-right region) and progressing counterclockwise about the origin, the <i>quadrants</i> are named quadrant I, quadrant II, quadrant III, and quadrant IV (note the use of Roman numerals). A <u>point</u> lies in a <i>quadrant</i> only if the <u>ordered pair</u> contains non-zero coordinates. If either coordinate of the <u>ordered pair</u> is zero, then the <u>point</u> lies on an <u>axis</u> and not in a <i>quadrant</i>.	5
Quadrilateral	A <u>polygon</u> with exactly 4 sides. Quadrilaterals	3

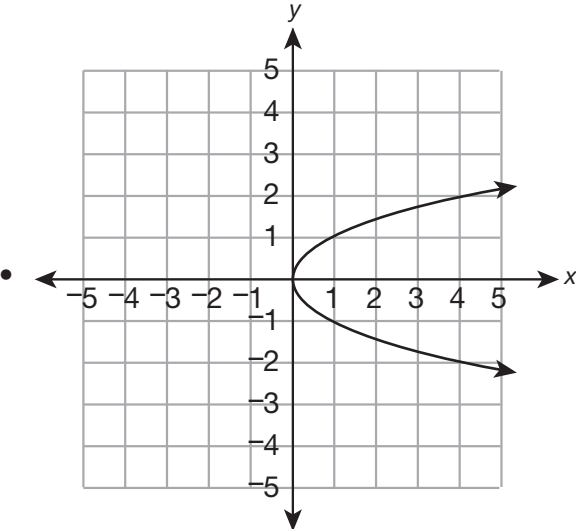
Term	Definition	Grade
Quartile	One of three values that divides a set of ordered data into four equal parts. • <i>first quartile</i> (Q1)—the <u>median</u> of all data points less than the <u>median</u> of the entire data set • <i>second quartile</i> (Q2)—the <u>median</u> of the entire data set (<i>Second quartile</i> and <u>median</u> are equivalent and interchangeable; however, <u>median</u> is used more frequently.) • <i>third quartile</i> (Q3)—the <u>median</u> of all data points greater than the <u>median</u> of the entire data set For example, for the data set {2, 5, 7, 12, 17, 22, 23}: • <i>first quartile</i> value: 5 • <i>second quartile</i> (<u>median</u>) value: 12 • <i>third quartile</i> value: 22 See also <u>Median</u>.	6*
Quotient	The result when one number is divided by another number (i.e., the answer to a division computation).	3
Radius	A <u>line segment</u> with one endpoint at the center of a <u>circle</u> and one endpoint on the <u>circle</u>. The length of the <i>radius</i> is equal to one-half the length of the <u>diameter</u>.  In common usage, the <i>radius</i> occasionally refers not only to the <u>line segment</u>, but also to the length of the <u>line segment</u> that constitutes the <i>radius</i>. (On the PSSA, it may be assumed that <i>radius</i> is the <u>line segment</u>, not the measurement of the <u>line segment</u> unless otherwise specified. If there is a context in which <i>radius</i> is intended to imply a measurement, the context must clearly, absolutely, and indisputably make that assertion.) See also <u>Diameter</u>.	5*
Range (of Data)	The <u>difference</u> between the greatest and the least values in a set of data. For example: • For the data set {1, 7, 9, 11}, the <i>range</i> is $11 - 1 = 10$. • For the data set {5, 7, 12, 23, 29}, the <i>range</i> is $29 - 5 = 24$.	6

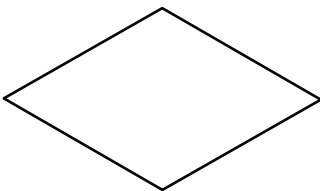
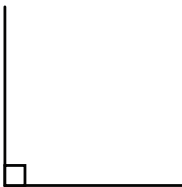
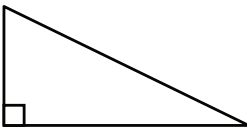
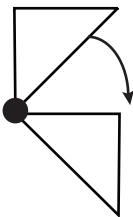
An asterisk (*) found next to the grade level indicates that the term is not specifically found within the Assessment Anchors and Eligible Content.

Term	Definition	Grade
Rate	A <u>ratio</u> that compares two quantities with different measurements (e.g., distance compared to time; height, in inches, compared to width, in inches). <i>Rate</i> is a measure of change. For example: • miles per hour • dollars : pounds • change in y compared to change in x (i.e., <u>slope</u>) See also <u>Ratio</u>.	6
Ratio	A comparison of two numbers, quantities, or <u>expressions</u> by division. It is often written as a <u>fraction</u>, but not always (e.g., $\frac{2}{3}$, 2:3, 2 to 3, and $2 \div 3$ all represent the same <i>ratio</i>).	6
Rational Number	Any number that is <u>equivalent</u> to a <u>fraction</u> written as an <u>integer</u> over a <u>counting number</u>. The set of <i>rational numbers</i> includes all of the <u>integers</u> since each <u>integer</u> can be written as that number over one. For example: • $\frac{4}{7}$, since it is a <u>fraction</u> of an <u>integer</u> over a <u>counting number</u> • 27, since it is <u>equivalent</u> to $\frac{27}{1}$ • $-3\frac{5}{8}$, since it is <u>equivalent</u> to $-\frac{29}{8}$ • 3.71, since it is <u>equivalent</u> to $\frac{371}{100}$ • $24.\overline{3}$, since it is <u>equivalent</u> to $24\frac{1}{3}$ • $0.94\overline{713}$, since it is <u>equivalent</u> to $\frac{94,619}{99,900}$ See also <u>Irrational Number</u>.	6
Ray	A part of a <u>line</u> that has one endpoint and continues infinitely in one direction or on one side of that <u>point</u>. A ray is identified by two <u>points</u>: first its endpoint and then another unique <u>point</u> on the <u>ray</u>.  Ray AB ($\overrightarrow{AB}$)	4

Term	Definition	Grade
Rectangle	A <u>parallelogram</u> with all <u>angles congruent</u>. Each of the <u>angles</u> in a <i>rectangle</i> is 90°.  Rectangle	K*
Rectangular Prism	A three-dimensional (solid) figure which has exactly six <u>faces</u>. All six <u>faces</u> are <u>rectangles</u>.  Rectangular Prism	5
Reflection	The <u>transformation</u> of a figure that produces the mirror image of the original figure. As a result of the <u>transformation</u>, the line over which the <i>reflection</i> occurs becomes a <u>line of symmetry</u>. Because the reflected image is <u>congruent</u> to the original image, a <i>reflection</i> is referred to as a rigid <u>transformation</u>. Informally, a <i>reflection</i> can be thought of as a “flip” of the original figure.  Reflection See also <u>Line of Symmetry</u>.	8
Regular Polygon	A <u>polygon</u> in which all sides are <u>congruent</u> and all <u>angles</u> are <u>congruent</u>.  Regular Polygons Two special types of <i>regular polygons</i> are <u>equilateral triangles</u> and <u>squares</u>.	4*

An asterisk (*) found next to the grade level indicates that the term is not specifically found within the Assessment Anchors and Eligible Content.

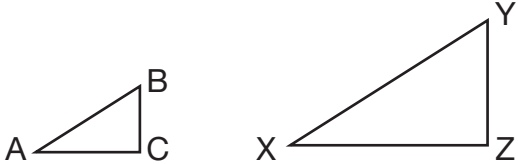
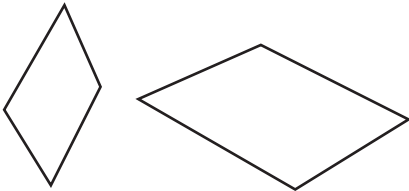
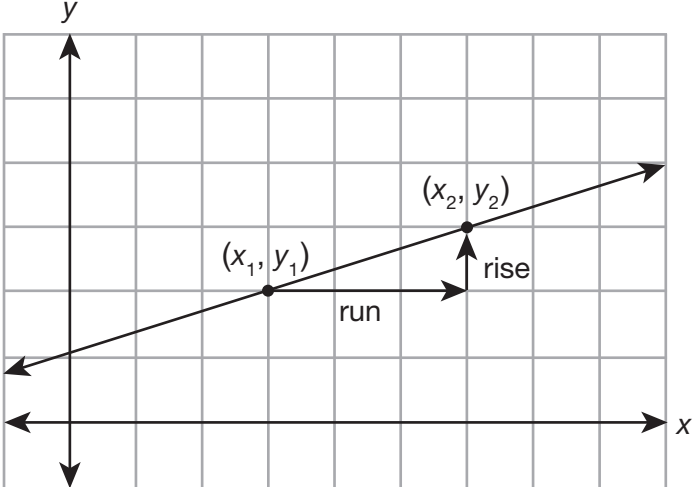
Term	Definition	Grade
Relation	Any set of <u>ordered pairs</u>. For example: • $\{(5, 9), (-3, 7), (15, 2), (-3, 9)\}$ • $\{(\text{insect}, \text{ant}), (\text{reptile}, \text{lizard}), (\text{bird}, \text{goose}), (\text{mammal}, \text{deer})\}$ • $\{(x + 2, 3 \times w), (a, b), (x + a, w - b), (a, 3 \times w)\}$ 	8
Repeating Decimal Number	A <u>decimal</u> number in which the fractional part (the part to the right of the decimal point) is non-terminating and extends infinitely in a repeating sequence of digits. When written, a bar may be written above the repeated digits (e.g., $0.333\dots$ may be written as $0.\overline{3}$). When a repeating decimal is written in <u>decimal notation</u> without the bar, an ellipsis (...) must be used to indicate the decimal does not terminate; also, three repetitions of the repeated digit(s) and/or some indication of which digits are repeated must be included. Only those numbers written under the bar are repeated infinitely. All <i>repeating decimal numbers</i> are <u>rational numbers</u>. For example: • $24.\overline{3} = 24.333\dots$ (the 3 repeats infinitely) • $0.94\overline{713} = 0.94713713713\dots$ (the 713 repeats infinitely) • $193.\overline{40} = 193.404040\dots$ (the 40 repeats infinitely; note the 0 cannot be ignored) See also <u>Terminating Decimal Number</u>.	8

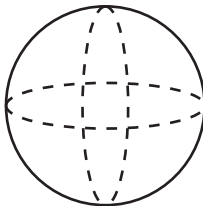
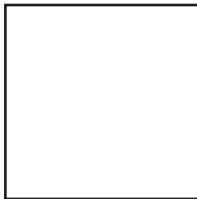
Term	Definition	Grade
Rhombus	A <u>parallelogram</u> with all sides <u>congruent</u>. The plural of <i>rhombus</i> is <i>rhombi</i>.  Rhombus	3
Right Angle	An <u>angle</u> that measures exactly 90°. A <i>right angle</i> may be marked with a small <u>square</u> in the interior of the <u>angle</u>.  Right Angle	4
Right Triangle	A <u>triangle</u> in which an interior <u>angle</u> is a <u>right angle</u>.  Right Triangle See also <u>Acute Triangle</u> and <u>Obtuse Triangle</u>.	4
Rotation	The <u>transformation</u> of a figure that moves the figure by rotating it about a fixed <u>point</u>. Often the <u>point</u> about which the original figure is rotated and the degrees of <i>rotation</i> are stated (e.g., a 90° clockwise <i>rotation</i> about point A). Because the rotated image is <u>congruent</u> to the original image, a <i>rotation</i> is referred to as a rigid <u>transformation</u>. Informally, a <i>rotation</i> can be thought of as a “turn” of the original figure.  Rotation	8

Term	Definition	Grade
Scale Drawing	A drawing that is geometrically <u>similar</u> to an original figure or object. In a <i>scale drawing</i>, the linear measurements may change but the <u>proportional relationships</u> of those measurements are preserved (i.e., length measurements in the <i>scale drawing</i> remain uniformly proportional to length measurements in the original figure). The <u>angle</u> measurements in a <i>scale drawing</i> and the original object or figure are <u>congruent</u>. See also <u>Proportional Relationship</u>.	7
Scale Factor	The number by which the length(s) of a geometric object is multiplied to generate a <u>similar</u> geometric object. The <i>scale factor</i> is the <u>magnitude</u> of a <u>dilation</u>. If a <i>scale factor</i> is greater than one, the dilated figure is larger than the original figure. If the <i>scale factor</i> is less than one, the dilated figure is smaller than the original figure. If the <i>scale factor</i> is one, the dilated figure is <u>congruent</u> to the original figure (i.e., the figure does not change). In some cases, the <i>scale factor</i> is a <u>negative</u> number. A <i>negative scale factor</i> results in both a <u>dilation</u> and a <u>reflection</u>. (<i>Negative scale factors</i> are generally only used when the original figure appears on a <u>coordinate grid</u>.)	7*
Scalene Triangle	A <u>triangle</u> in which no two sides are <u>congruent</u> (i.e., all three sides have different lengths). Scalene Triangle See also <u>Equilateral Triangle</u> and <u>Isosceles Triangle</u>.	4*

An asterisk (*) found next to the grade level indicates that the term is not specifically found within the Assessment Anchors and Eligible Content.

Term	Definition	Grade
Scatter Plot	A plot that represents discrete <u>bivariate data</u>. The data points are represented by <u>ordered pairs</u> marked on a <u>coordinate grid</u>. In addition to visually representing data, <i>scatter plots</i> often serve as the geometric basis for derivation and application of <u>lines of best fit</u>. Time Needed to Paint Houses in a Neighborhood Scatter Plot See also <u>Line of Best Fit</u>.	8
Scientific Notation	A form of exponential notation created by writing a number as the <u>product</u> of a <u>decimal</u> number multiplied by a power of 10 (e.g., 10^3). If the original number is positive, the <u>decimal</u> number must be greater than or equal to 1, but less than 10. If the original number is negative, the <u>decimal</u> number must be less than or equal to -1, but greater than -10. A number is written in <i>scientific notation</i> by “floating” the <u>decimal</u> point in the original number to a position where it is preceded by a single, nonzero digit and then multiplying that number by the greatest power of ten less than or equal to the original number. For example: - The <i>scientific notation</i> of 23,911.1862 is 2.39111862×10^4. - The <i>scientific notation</i> of 0.00531 is 5.31×10^{-3}. <i>Scientific notation</i> is generally used to represent numbers that have either very large or very small <u>absolute values</u>.	8

Term	Definition	Grade
Similar	Geometric figures in which the measures of corresponding sides are uniformly <u>proportional</u> and the measure of <u>corresponding angles</u> are congruent. In <i>similar</i> figures, the linear measurements may be different but the <u>proportional relationships</u> of those measurements are preserved (i.e., length measurements in the one figure remain uniformly proportional to length measurements in the other figure). <i>Similar</i> figures are <u>dilations</u> of each other. An informal definition of <i>similar</i> figures is figures with the same shape but not necessarily the same size.  Similar Triangles  Similar Quadrilaterals Figures that are <u>congruent</u> are also <i>similar</i>.	8
Slope	The <u>ratio</u> of the vertical change compared to the horizontal change between two <u>points</u> on a <u>coordinate grid</u>. <i>Slope</i> is often expressed as $\frac{\text{rise}}{\text{run}}$ or $\frac{\text{change in } y}{\text{change in } x}$. A vertical <u>line</u> has an undefined <i>slope</i>. A horizontal <u>line</u> has a <i>slope</i> of 0. Note that <i>slope</i> is a <u>rate</u>.  Slope The <u>variable</u> m is often used to represent <i>slope</i> (e.g., $m = \frac{y_2 - y_1}{x_2 - x_1}$, $y = mx + b$).	8

Term	Definition	Grade
Sphere	A three-dimensional (solid) figure in which all <u>points</u> on the surface are the same distance from the center.  Sphere	8
Square	A <u>parallelogram</u> with all sides <u>congruent</u> and all <u>angles congruent</u>. Thus, a <i>square</i> is also a <u>rectangle</u> and a <u>rhombus</u>.  Square	K*
Square Root	One of two equal <u>factors</u> (roots) of a number or <u>expression</u>. Informally, it can be thought of as “the number, when multiplied by itself, has a <u>product</u> equal to a given number.” Note that any positive number has two square roots: one positive and one negative. The unique nonnegative square root of a nonnegative number is the principal square root. The square roots of 25 are 5 and -5; the principal square root of 25 is 5 and can be written $\sqrt{25} = 5$. For example: • $\sqrt{9} = 3$ since $3 \times 3 = 9$ and 3 is nonnegative • $\sqrt{0.36} = 0.6$ since $0.6 \times 0.6 = 0.36$ and 0.6 is nonnegative • $\sqrt{49w^4} = 7w^2$ since $7w^2 \times 7w^2 = 49w^4$ and $7w^2$ is nonnegative	8

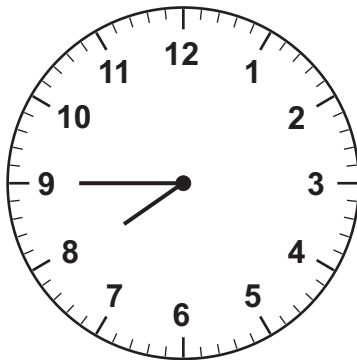
An asterisk (*) found next to the grade level indicates that the term is not specifically found within the Assessment Anchors and Eligible Content.

Term	Definition	Grade																	
Stem-and-Leaf Plot	A plot that represents discrete numerical data. In the display, a bar separates common digits in larger place values from the smaller digits. The numbers to the left of the bar are the <i>stems</i> and the numbers to the right of the bar are the <i>leaves</i>. Generally, the <i>leaves</i> are the digits in the ones place of all the numbers in a data set and the <i>stems</i> are the common digits in the place values greater than the ones place. Number of Sit-Ups Each tens digit is called a <i>stem</i>. <table><tr><td>3</td><td>4</td><td>6</td><td>8</td><td>8</td></tr><tr><td>4</td><td>0</td><td>3</td><td>6</td><td>7</td></tr><tr><td>5</td><td>0</td><td>0</td><td>1</td><td>2</td></tr></table> Each ones digit is called a <i>leaf</i>. <table><tr><td>Key</td></tr><tr><td>3 6 = 36</td></tr></table> Stem-and-Leaf Plot	3	4	6	8	8	4	0	3	6	7	5	0	0	1	2	Key	3 6 = 36	6*
3	4	6	8	8															
4	0	3	6	7															
5	0	0	1	2															
Key																			
3 6 = 36																			
Straight Angle	An <u>angle</u> with a measure of exactly 180°. A <i>straight angle</i> created by two <u>rays</u> forms a <u>line</u> .	5*																	
Subtrahend	An <u>expression</u> that is subtracted from another <u>expression</u> . For example: - In the computation 29 – 11 = 18, 11 is the <i>subtrahend</i>. - In the <u>expression</u> (3 + x) – 7w, 7w is the <i>subtrahend</i>.	4																	
Sum	The result when adding two or more numbers (i.e., the answer to an addition computation).	3																	
Supplementary Angles	Two <u>angles</u> for which the <u>sum</u> of their measures is 180°. If two <i>supplementary angles</i> are also <u>adjacent angles</u>, they form a <u>straight angle</u>. Each of two <i>supplementary angles</i> is referred to as the supplement of the other <u>angle</u> (e.g., a 125° angle is the supplement of a 55° angle). Supplementary Angles See also <u>Complementary Angles</u>.	7																	

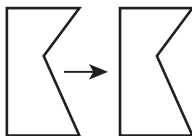
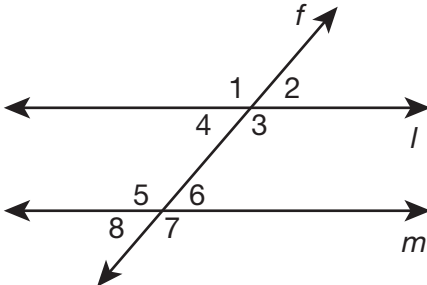
An asterisk (*) found next to the grade level indicates that the term is not specifically found within the Assessment Anchors and Eligible Content.

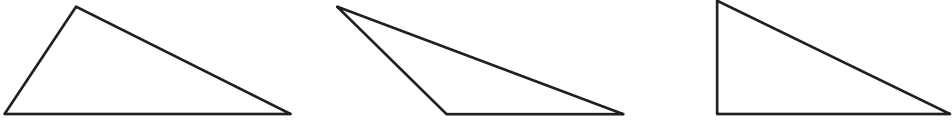
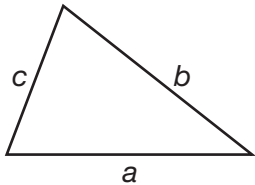
Term	Definition	Grade										
Surface Area	The <u>sum</u> of the <u>areas</u> of all the <u>faces</u> of a three-dimensional (solid) figure or object.	6										
Tally Chart	A table or chart in which tally marks (in contrast to numbers or pictures) are used to record data. Favorite Stores <table><tr><th>Type of Store</th><th>Number of Students</th></tr><tr><td>pet</td><td> </td></tr><tr><td>book</td><td> </td></tr><tr><td>game</td><td> </td></tr><tr><td>hardware</td><td> </td></tr></table> Tally Chart	Type of Store	Number of Students	pet		book		game		hardware		3
Type of Store	Number of Students											
pet												
book												
game												
hardware												
Terminating Decimal Number	A <u>decimal</u> number that can be written, in its entirety, with a finite number of digits. See also <u>Repeating Decimal Number</u>.	8										
Theoretical Probability	A likelihood of an outcome based on the number of expected favorable outcomes compared to the number of possible outcomes. A <i>theoretical probability</i> is determined prior to any trials. The value of a <i>theoretical probability</i> (P) is determined by the following formula: $P(\text{favorable outcome}) = \frac{\text{theoretical number of favorable outcomes}}{\text{theoretical number of possible outcomes}}$ For example: • Probability of flipping heads in one trial is $\frac{1}{2}$ ○ 1 is the theoretical number of favorable outcomes (heads) ○ 2 is the theoretical number of possible outcomes (heads or tails) • Probability of the first snow occurring on a Tuesday or a Wednesday is $\frac{2}{7}$ ○ 2 is the theoretical number of favorable outcomes (Tuesday or Wednesday) ○ 7 is the theoretical number of possible outcomes (7 days in a week) See also <u>Experimental Probability</u>.	8*										

An asterisk (*) found next to the grade level indicates that the term is not specifically found within the Assessment Anchors and Eligible Content.

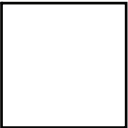
Term	Definition	Grade
Time (analog)	Time displayed by an analog clock. Analog clocks display continuous time. Traditional two- or three-hand clocks are examples of clocks that display <i>analog time</i>.  Analog Clock	3
Time (digital)	Time displayed as digits, as seen on digital clocks. <i>Digital time</i> shows each unit of time separated by colons. Digital clocks typically display only <u>whole-number</u> hours, minutes, and/or seconds. <i>Digital times</i> may refer to either elapsed time or the time of the day. For example: • 2:57 represents 2 hours, 57 minutes • 11:03:20 represents 11 hours, 3 minutes, 20 seconds • 7:45 P.M. represents 7 hours, 45 minutes after noon and is read as “seven forty-five P.M.” (On the PSSA, it may be assumed all <i>digital times</i> begin with the hour unless otherwise specified.)	3*
Transformation	The application of a rule that may change the size or location of a geometric figure. Application of the rule is termed a “mapping.” <i>Transformations</i> may include <u>translation</u>, <u>reflection</u>, <u>rotation</u>, or <u>dilation</u>. A <i>rigid transformation</i> is one in which the new figure is <u>congruent</u> to the original figure. A <i>non-rigid transformation</i> is one in which the new figure is not congruent to the original figure (the new figure may be <u>similar</u> to the original figure, although this is not always the case).	8

An asterisk (*) found next to the grade level indicates that the term is not specifically found within the Assessment Anchors and Eligible Content.

Term	Definition	Grade
Translation	The movement of a figure to a new position without any <u>dilation</u>, <u>rotation</u>, or <u>reflection</u>. It is a <u>transformation</u> in which the size and orientation of the original figure remain constant but the location in a <u>plane</u> changes. Because the translated image is <u>congruent</u> to the original image, a <i>translation</i> is referred to as a rigid <u>transformation</u>. Informally, a <i>translation</i> can be thought of as a “slide” of the original figure.  Translation	8
Transversal	A <u>line</u> that intersects two or more other <u>lines</u>. The <u>lines</u> intersected by a <i>transversal</i> may or may not be parallel. The relationships of <u>angles</u> formed by the intersection of two <u>lines</u> and a <i>transversal</i> are frequently encountered in the study of geometry.  Line <i>f</i> is a transversal through parallel lines <i>l</i> and <i>m</i>. See also <u>Alternate Exterior Angles</u>, <u>Alternate Interior Angles</u>, and <u>Corresponding Angles</u>.	7
Trapezoid	A <u>quadrilateral</u> with exactly one pair of parallel sides.  Trapezoids	6

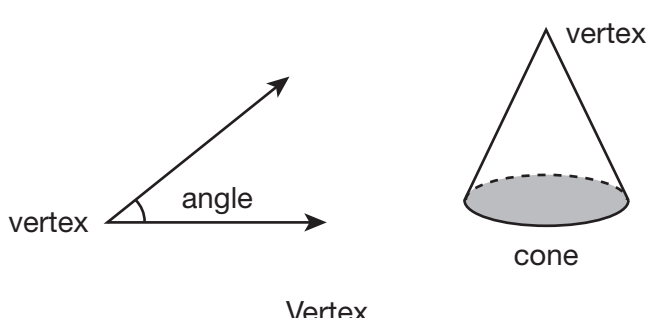
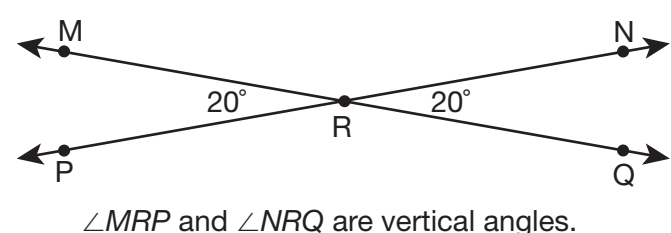
Term	Definition	Grade																		
Triangle	A <u>polygon</u> with exactly 3 sides. A <i>triangle</i> may be classified by its side lengths (i.e., <u>equilateral triangle</u>, <u>isosceles triangle</u>, or <u>scalene triangle</u>), or by its <u>angle</u> measures (i.e., <u>acute triangle</u>, <u>obtuse triangle</u>, <u>right triangle</u>, or <u>equiangular triangle</u>).  Triangles	K*																		
Triangle Inequality Theorem	The theorem that asserts the <u>sum</u> of the lengths of any two sides of a <u>triangle</u> is greater than the length of the third side.  $a + b > c$ $a + c > b$ $b + c > a$	7																		
Two-Way Table	A table that shows the relationship between two sets of categorical <u>variables</u>. The entries in the table are either frequency counts (numerical values) or relative frequencies (<u>ratios</u> or percents). High Temperatures during the Month <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th><th>Above 40°F</th><th>40°F or Colder</th></tr> </thead> <tbody> <tr> <td>January</td><td>14</td><td>17</td></tr> <tr> <td>February</td><td>18</td><td>10</td></tr> </tbody> </table> High Temperatures during the Month <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th><th>Above 40°F</th><th>40°F or Colder</th></tr> </thead> <tbody> <tr> <td>January</td><td>45%</td><td>55%</td></tr> <tr> <td>February</td><td>64%</td><td>36%</td></tr> </tbody> </table> Two-Way Tables		Above 40°F	40°F or Colder	January	14	17	February	18	10		Above 40°F	40°F or Colder	January	45%	55%	February	64%	36%	8
	Above 40°F	40°F or Colder																		
January	14	17																		
February	18	10																		
	Above 40°F	40°F or Colder																		
January	45%	55%																		
February	64%	36%																		
Unit Price	The price of a single item or unit (e.g., \$3.50 per pound).	4*																		

An asterisk (*) found next to the grade level indicates that the term is not specifically found within the Assessment Anchors and Eligible Content.

Term	Definition	Grade
Unit Rate	The <u>ratio</u> of a quantity to a single unit of comparison. For example: • 52 miles per hour – or – 52 miles : 1 hour – or – $\frac{52 \text{ miles}}{1 \text{ hour}}$ • 8.3 pounds per gallon – or – 8.3 pounds : 1 gallon – or – $\frac{8.3 \text{ pounds}}{1 \text{ gallon}}$ • 4 beats per measure – or – 4 beats : 1 measure – or – $\frac{4 \text{ beats}}{1 \text{ measure}}$ • \$2.98 per pound – or – \$2.98 : 1 pound – or – $\frac{\\$2.98}{1 \text{ pound}}$ See also <u>Constant of Proportionality</u> and <u>Unit Price</u>.	6
Unit Square	A <u>square</u> with each side 1 unit in length. The <u>area</u> of a <i>unit square</i> is 1 square unit. 1 unit  area = 1 square unit Unit Square	3
Variable	A letter or symbol that represents a missing or unknown value. Generally, the letter is lowercase and italicized. For example: • In the <u>expression</u> $5w + 17$, the <i>variable</i> is the w. • In the <u>equation</u> $3 + \square = 9$, the <i>variable</i> is the $\square$. • In the formula $y = mx + b$, the <i>variables</i> are the y, m, x, and b. Note: not all special characters are <i>variables</i>. For example, the Greek letter π (pi) represents a specific value (3.14159265...).	6

Term	Definition	Grade
Venn Diagram	A diagram that represents the relationship between sets of data (either numerical or categorical). The diagram typically consists of data entered into two or more <u>circles</u>—distinct or intersecting—drawn inside a <u>rectangle</u>. The <u>rectangle</u> represents the universal set and the circles represent subsets. Data that are in two or more of the subsets will appear in the intersection of the circles representing those subsets. In the <i>Venn diagram</i> below, the left <u>circle</u> contains the <u>prime numbers</u> less than 20 (2, 3, 5, 7, 11, 13, 17, and 19) and the right <u>circle</u> contains the odd <u>whole numbers</u> less than 20 (1, 3, 5, 7, 9, 11, 13, 15, 17, and 19). Since the numbers 3, 5, 7, 11, 13, 17, and 19 are both prime and odd, they appear in the intersection (overlap) of the two <u>circles</u>; outside of the <u>circles</u> are the even, nonprime <u>whole numbers</u> less than 20 (0, 4, 6, 8, 10, 12, 14, 16, 18). Whole Numbers Less than 20 Venn Diagram This representation of data is named after the English mathematician/logician John Venn (1834–1923).	4*

An asterisk (*) found next to the grade level indicates that the term is not specifically found within the Assessment Anchors and Eligible Content.

Term	Definition	Grade
Vertex	A <u>point</u> where <u>lines</u>, <u>rays</u>, <u>line segments</u>, two sides of a two-dimensional (plane) figure, or three <u>edges</u> of a three-dimensional (solid) figure meet. A <i>vertex</i> is the single <u>point</u> that geometric figures have in common when they intersect. The plural of <i>vertex</i> is <i>vertices</i>. For example: - The <i>vertex</i> of an <u>angle</u> is the <u>point</u> at which the <u>rays</u> that form the <u>angle</u> intersect. - A <i>vertex</i> of a <u>pyramid</u> is a <u>point</u> at which three <u>faces</u> intersect. - A <i>vertex</i> of a <u>square</u> is one of the “corners” (a <u>point</u> at which two sides intersect). - The <i>vertex</i> of a <u>cone</u> is the <u>point</u> opposite the base.  Vertex	4
Vertical Angles	The pair of <u>angles</u> with the same <u>vertex</u> on opposite sides of two intersecting <u>lines</u>. <i>Vertical angles</i> are <u>congruent</u>.  $\angle MRP$ and $\angle NRQ$ are vertical angles. Note: <i>vertical angles</i> are not necessarily oriented vertically.	7
Volume	The amount of space (in cubic units) that a three-dimensional (solid) figure occupies or contains. Units such as cubic meters (m^3), cubic inches (cu in.), gallons (g), liters (L), and fluid ounces (fl oz.) are used to measure <i>volume</i> .	3
Whole Number	A <u>counting number</u> or zero. Any number from the set of numbers represented by $\{0, 1, 2, 3, \dots\}$. A <i>whole number</i> is sometimes referred to as a non-negative <u>integer</u> .	3
x-Axis	The horizontal <u>axis</u> of a <u>coordinate grid</u> .	5
y-Axis	The vertical <u>axis</u> of a <u>coordinate grid</u> .	5

Pennsylvania System of School Assessment: Mathematics
Assessment Anchors and Eligible Content
with Glossary
June 2014

Copyright © 2014 by the Pennsylvania Department of Education. The materials contained in this publication may be duplicated by Pennsylvania educators for local classroom use. This permission does not extend to the duplication of materials for commercial use.