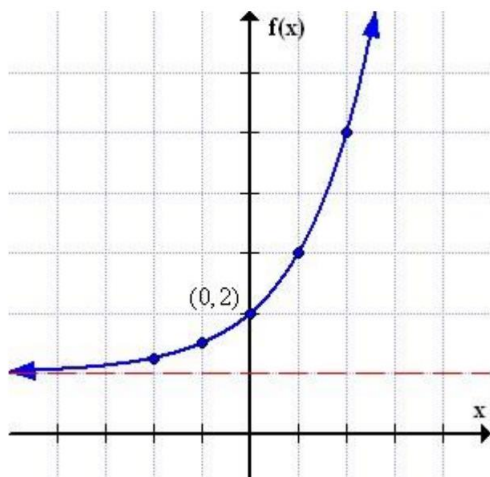


Graph each function.

1a) $f(x) = 2^x + 1$

1b) $f(x) = \left(\frac{2}{3}\right)^x - 2$

1c) $f(x) = 2^{(x-1)} - 2$



- 2a) Teresa was late getting ready for a party, and the liters of soft drinks she bought were still at room temperature (73°F) with guests due to arrive in 15 minutes. If she puts these in her freezer at -10°F , will the drinks be cold enough (35°F) for her guests? Note: She check the temperature of the drinks after 5 minutes in the freezer and the temperature had dropped to 61°F .

Let x = time and y = Temperature

$$y = ab^x - 10$$

$$y = 83b^x - 10 \text{ (because initial Temp.} = 73\text{)}$$

$$61 = 83b^5 - 10 \text{ (because Temp.} = 61 \text{ after 5 min.)}$$

$$b \approx .96925$$

$$y = 83(.96925)^x - 10$$

$$\text{So, } y = 42 \text{ when } x = 15$$

Therefore, NO they will not be cold enough as they are only down to 42°F at that time!

- 2b) A thermometer is taken from a room at 72°F to the outdoors where the temperature is 20°F . Determine the reading on the thermometer after 5 minutes if the reading drops to 48°F after one minute.
- 2c) A new car purchased for \$25,000 decreases exponentially at 25% annually. What is the value of the car after 10 years?
- 2d) Krypton-85 has a half-life of 10.76 years. How much of a sample of 60 g is remaining after 50 years?