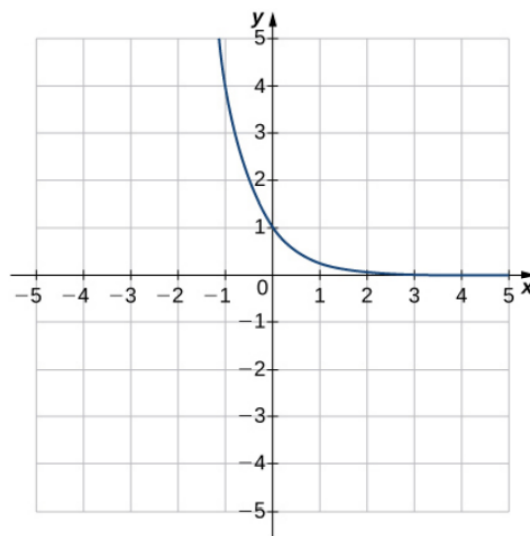


Exercise 236

For the following exercises, match the exponential equation to the correct graph.

- a. $y = 4^{-x}$
- b. $y = 3^{x-1}$
- c. $y = 2^{x+1}$
- d. $y = \left(\frac{1}{2}\right)^x + 2$
- e. $y = -3^{-x}$
- f. $y = 1 - 5^x$



Solution

The equation corresponding to the given graph is a.,

$$y = 4^{-x}.$$

Notice that at $x = -1$ the function has the value $y = 4$, and at $x = 0$ the function has the value $y = 1$.

$$y(-1) = 4^{-(-1)} = 4^1 = 4$$

$$y(0) = 4^{-(0)} = 4^0 = 1$$

Also, notice that the function tends to $y = 0$ as x becomes large.

$$y = \underbrace{4^{-x}}_{\approx 0 \text{ for large } x} \approx 0$$