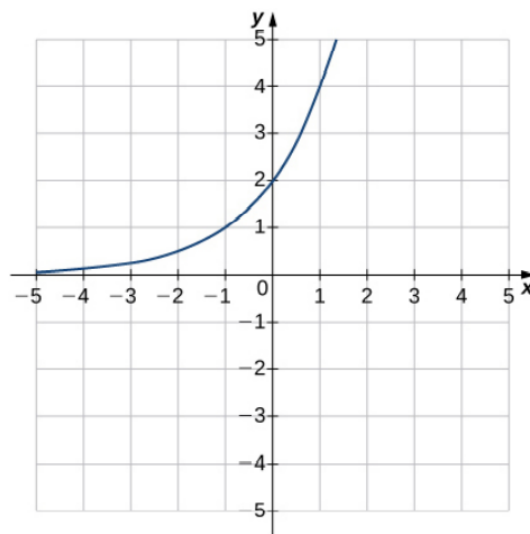


Exercise 238

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 c.,

$$y = 2^{x+1}.$$

Notice that at $x = 0$ the function has the value $y = 2$, and at $x = 1$ the function has the value $y = 4$.

$$y(-1) = 2^{0+1} = 2^1 = 2$$

$$y(0) = 2^{1+1} = 2^2 = 4$$

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

$$y = \underbrace{2^{x+1}}_{\approx 0 \text{ for large } x} \approx \infty$$