

Circle the correct option and give the function name.

1) Translated 1 unit down

$$f(x) = 4^x - 1$$

2) reflected over the x-axis

$$f(x) = -(4^x)$$

$$f(x) = -4^x$$

3) vertically stretched by 2

$$f(x) = 2(4^x)$$

4) vertically stretched by 4

$$f(x) = 4(4^x)$$

5) translated 1 unit to the left

$$f(x) = 4^{x+1}$$

6) reflected over the y-axis

$$f(x) = 4^{1-x}$$

7) vertically compressed by  $\frac{1}{2}$

$$f(x) = \frac{1}{2}(4^x)$$

8) vertically compressed by  $\frac{1}{4}$

$$f(x) = \frac{1}{4}(4^x)$$

Circle the correct option and give the function name.

1) Translated 3 units down and vertically

$$f(x) = 4 \log_4(x^2 - 2) - 3$$

2) reflected over the x-axis

$$f(x) = -4 \log_4 x^2$$

3) vertically stretched by 4

$$f(x) = 4 \log_4 x^2$$

4) vertically stretched by 2

$$f(x) = 2 \log_4(x^2)$$

5) vertically compressed by  $\frac{1}{2}$

$$f(x) = \frac{1}{2} \log_4(x^2)$$

6) translated 3 units to the left and vertically

$$f(x) = 4 \log_4(x^2 + 3) + 3$$

7) vertically stretched by 4

$$f(x) = 4 \log_4(x^2)$$

8) vertically stretched by  $\frac{1}{2}$

$$f(x) = \frac{1}{2} \log_4(x^2)$$

9) vertically stretched by  $\frac{1}{2}$

$$f(x) = \frac{1}{2} \log_4(x^2)$$

10) translated 3 units to the left and vertically

$$f(x) = 4 \log_4(x^2 + 3) + 3$$