

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) horizontally stretched by 2

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

5) horizontal 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) horizontally compressed by  $\frac{1}{2}$

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

Circle the correct option and give the function name.

1) Translated 3 units down and 1 unit right

$$f(x) = 4 \log_4(x-3) - 1$$

2) reflected over the x-axis

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

3) vertically stretched by 4

$$f(x) = 4 + 4 \log_4 x$$

4) horizontally stretched by 2

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

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

$$f(x) = 4 \log_4\left(\frac{x}{2}\right)$$

6) horizontal stretch by 2 and 1 unit up

$$f(x) = 4 \log_4(x+2) + 1$$

7) vertical stretch by 4

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

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

$$f(x) = \frac{1}{4} + 4 \log_4 x$$

9) horizontally compressed by  $\frac{1}{2}$

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

10) horizontal stretch by 2 and 1 unit down

$$f(x) = 4 \log_4(x-2) - 1$$