

# Parent Functions and Transformations Exit Quiz

## Multiple choices

1. Describe the transformations necessary to transform the graph of  $f(x) = \sqrt{x} \rightarrow g(x) = -3\sqrt{x} - 1$ .

- a.) expanded vertically by a factor of 3, reflected across the x-axis translated down 1
- c.) expanded horizontally by a factor of 3, reflected across the x-axis translated down 1

- b.) expanded vertically by a factor of 3, reflected across the y-axis translated down 1 unit.
- d.) expanded vertically by a factor of 1, reflected across the x-axis translated down 3 units.

2. Transform the function  $f(x) = |x|$  - expand horizontally by a factor of 2, translate right 1 unit translate up 5 units. The resulting function as an equation is:

a.)  $y = |2x - 1| + 5$

b.)  $y = \left| \frac{1}{2}x - 1 \right| + 5$

c.)  $y = \left| \frac{1}{2}x + 1 \right| + 5$

d.)  $y = \left| \frac{1}{2}x - 1 \right| - 5$

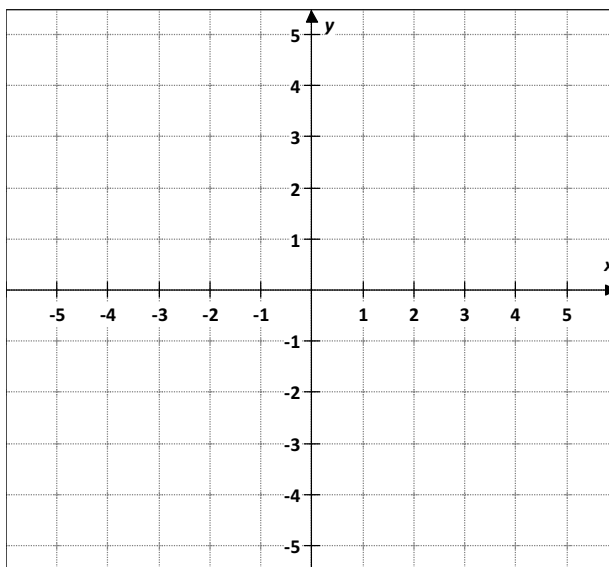
3. Describe the transformations necessary to transform the graph of  $f(x) = \llbracket x \rrbracket \rightarrow g(x) = \llbracket x \rrbracket + 3$

- a.) Translated 3 units down
- c.) Translated 3 units up

- b.) Translated 3 units left
- d.) Translated 3 units right

4. Graph piecewise function.

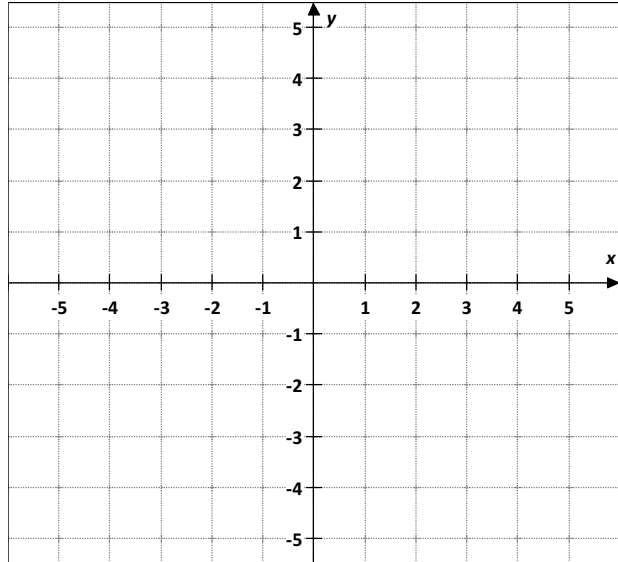
$$f(x) = \begin{cases} x^3 & \text{if } x < -1 \\ 1 & \text{if } -1 < x < 1 \\ x^2 + 2 & \text{if } x \geq 1 \end{cases}$$



# Parent Functions and Transformations Exit Quiz

5. Use the graph of parent function to graph the function. Find the domain and the range of the new function.

$$h(x) = -(x + 1)^3 - 1$$



# Parent Functions and Transformations Exit Quiz

## ANSWERS

### Multiple choices

1. Describe the transformations necessary to transform the graph of  $(x) = \sqrt{x} \rightarrow g(x) = -3\sqrt{x} - 1$ .

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c.) expanded horizontally by a factor of 3, reflected across the x-axis translated down 1

b.) expanded vertically by a factor of 3, reflected across the y-axis translated down 1 unit.

d.) expanded vertically by a factor of 1, reflected across the x-axis translated down 3 units.

2. Transform the function  $f(x) = |x|$  - expand horizontally by a factor of 2, translate right 1 unit translate up 5 units. The resulting function as an equation is:

a.)  $y = |2x - 1| + 5$

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3. Describe the transformations necessary to transform the graph of  $f(x) = \llbracket x \rrbracket \rightarrow g(x) = \llbracket x \rrbracket + 3$

a.) Translated 3 units down

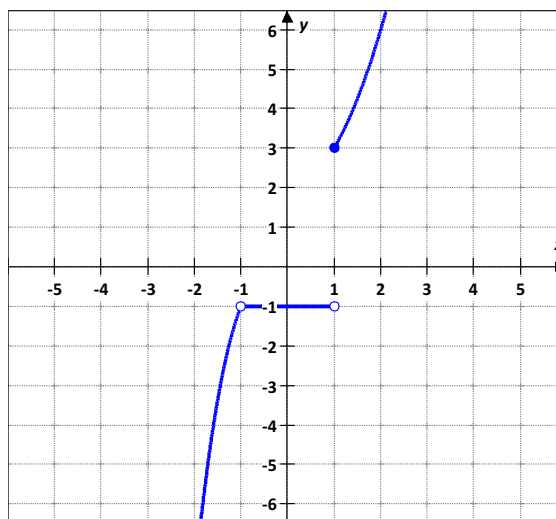
b.) Translated 3 units left

c.) Translated 3 units up

d.) Translated 3 units right

### 4. Graph piecewise function.

$$f(x) = \begin{cases} x^3 & \text{if } x < -1 \\ 1 & \text{if } -1 < x < 1 \\ x^2 + 2 & \text{if } x \geq 1 \end{cases}$$



# Parent Functions and Transformations Exit Quiz

5. Use the graph of parent function to graph the function. Find the domain and the range of the new function.

$$h(x) = -(x + 1)^3 - 1$$

$$h(x) = -(x + 1)^3 - 1 \quad \longrightarrow$$

$$\text{Parent function } f(x) = x^3 \quad \longrightarrow$$

**Transformation:**

Reflected in the x axis

Translated 1 unit up

Translated 1 unit right

$$D = (-\infty, \infty)$$

$$R = (-\infty, \infty)$$

