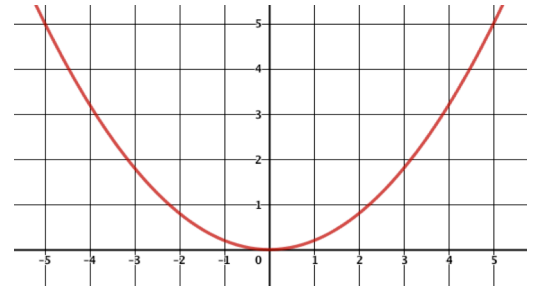


STRETCHES AND COMPRESSIONS

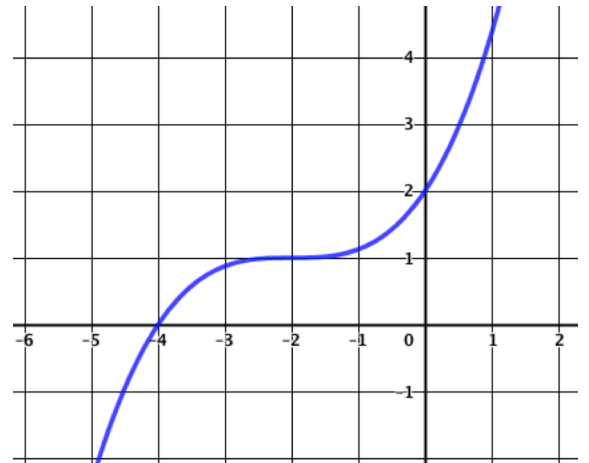
1. What is a possible equation for the graph to the right?

- a. $g(x) = x^2$
- b. $g(x) = 2x^2$
- c. $g(x) = \frac{1}{5}x^2$
- d. $g(x) = (3x)^2$



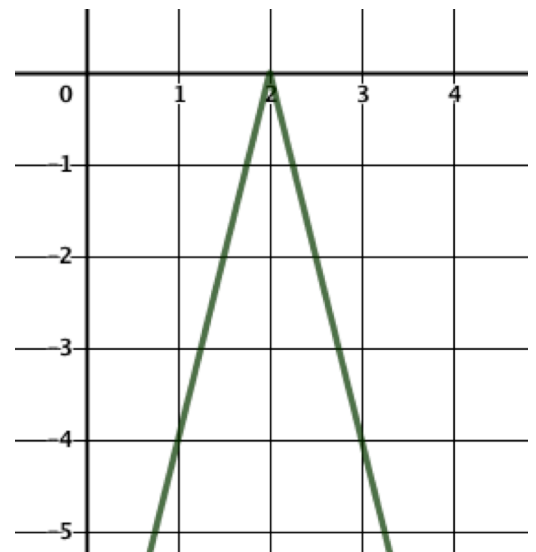
2. What is a possible equation for the graph to the right?

- a. $h(x) = (x + 2)^3 + 1$
- b. $h(x) = \left(\frac{1}{2}x + 2\right)^3 + 1$
- c. $h(x) = 2(x + 2)^3 + 1$
- d. $h(x) = (2x + 2)^3 + 1$



3. What is a possible equation for the graph to the right?

- a. $k(x) = -4|x - 2|$
- b. $k(x) = -\left|\frac{1}{2}x - 2\right|$
- c. $k(x) = 4|x - 2|$
- d. $k(x) = -\frac{1}{2}|x + 2|$



Write the equation of the function under the following transformations.

1. $f(x) = \sqrt{x}$: vertical compression by a factor of $\frac{2}{7}$, shift up by 3 units, right shift by 6 units.

2. $f(x) = x^3$: shift down by 9 units, left shift by 4 units, vertical stretch by a factor of 4, reflection about the x axis.

3. $f(x) = |x|$: reflection about the y-axis, vertical shift down by 5 units, horizontal stretch by a factor of 3.

4. $f(x) = \frac{1}{x}$: horizontal shift left by 6, vertical shift up by 11 units, vertical stretch by a factor of 5, reflection about the x axis.

Describe the transformations on the functions.

5. $g(x) = -\frac{1}{4}\sqrt[3]{x+3} - 4$

6. $h(x) = (3x - 1)^2$

7. $k(x) = -\left(\frac{1}{2}x + 7\right)^3$

8. $h(x) = -4\sqrt{-x} - 5$