

Graph transformed functions from a parent function

- 1** Which function $g(x)$ shows this transformation of $f(x)$?

Shift up : 4

A $g(x) = f(x) - 4$

B $g(x) = f(x) + 4$

C $g(x) = f(x - 4)$

- 2** Which function $g(x)$ shows this transformation of $f(x)$?

Shift down : r

A $g(x) = f(x) - r$

B $g(x) = f(x) + r$

- 3** If the vertex of $f(x)$ is (a,b) , what is the vertex of $g(x)$?

$$g(x) = f(0.33x)$$

A $(a, 0.33 \cdot b)$

B $(\frac{a}{0.33}, b)$

- 4** If the vertex of $f(x)$ is (a,b) , what is the vertex of $g(x)$?

$$g(x) = f(n \cdot x)$$

A $(\frac{a}{n}, b)$

B $(a, n \cdot b)$

- 5** If the vertex of $f(x)$ is (a,b) , which function $g(x)$ would have this vertex?

$$(a, b - 4)$$

A $g(x) = f(x) - 4$

B $g(x) = f(x) + 4$

- 6** If the vertex of $f(x)$ is (a,b) , which function $g(x)$ would have this vertex?

$$(a, b - p)$$

A $g(x) = f(x) + p$

B $g(x) = f(x) - p$

- 7** Which function $g(x)$ shows these transformations of $f(x)$?

Reflect in Y - Axis

Vertical compression : 0.25

A $g(x) = 0.25f(-x)$

B $g(x) = -0.25f(x)$

C $g(x) = f(-0.25x)$

- 8** If the vertex of $f(x)$ is (a,b) , what is the vertex of $g(x)$?

$$g(x) = -f(x) - 2$$

A $(a, -(b - 2))$

B $(a, -(b + 2))$

C $(-a, b - 2)$



Graph transformed functions from a parent function

9

If the vertex of $f(x)$ is (a,b) , what is the vertex of $g(x)$?

$$g(x) = f(m \cdot x) - t$$

- A $\left(\frac{a}{m}, b + t\right)$
- B $\left(\frac{a}{m}, b - t\right)$
- C $(a, m \cdot b - t)$

10

If the vertex of $f(x)$ is (a,b) , which function $g(x)$ would have this vertex?

$$(-a, 3 \cdot b)$$

- A $g(x) = f(-3x)$
- B $g(x) = 3f(-x)$
- C $g(x) = -3f(x)$

11

How is the graph of f transformed to produce g ?

$$g(x) = a f\left(b(x-h)\right) + k$$

$$(x, y) \mapsto \left(\frac{x}{b} + h, ay + k\right)$$

$$g(x) = f(x + 2)$$

- A vertically stretch by a factor of 2
- B shift down by 2
- C shift left by 2
- D horizontally compress by a factor of 2

12

Using the mapping notation, which variable and value produce this transformation?

$$g(x) = a f(b(x-h)) + k$$

$$(x, y) \mapsto \left(\frac{x}{b} + h, ay + k\right)$$

shift down by 3

- A $k = -3$
- B $k = 3$
- C $h = -3$
- D $b = 3$

13

Using the mapping notation, how does this variable value transform the graph of f ?

$$g(x) = a f(b(x-h)) + k$$

$$(x, y) \mapsto \left(\frac{x}{b} + h, ay + k\right)$$

$$k = -3$$

- A shift down by 3
- B shift right by 3
- C reflect over the y-axis
- D reflect over the x-axis

14

Which function applies this transformation to f ?

$$g(x) = a f(b(x-h)) + k$$

$$(x, y) \mapsto \left(\frac{x}{b} + h, ay + k\right)$$

horizontally compress by a factor of 2

- A $g(x) = f(2x)$
- B $g(x) = 2f(x)$

15

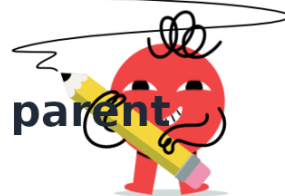
How is the graph of f transformed to produce g ?

$$g(x) = a f(b(x-h)) + k$$

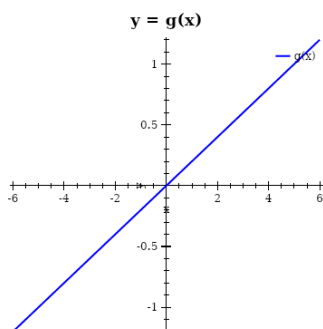
$$(x, y) \mapsto \left(\frac{x}{b} + h, ay + k\right)$$

$$g(x) = f(3(x+2))$$

- A horizontally stretch by a factor of 3 and shift left by 2
- B horizontally compress by a factor of 3 and vertically stretch by a factor of 2
- C shift down by 3 and reflect over the x-axis
- D horizontally compress by a factor of 3 and shift left by 2



Graph transformed functions from a parent function

16Which transformed function $g(x)$ is this graph showing?

A

$$f(x) = x$$
$$g(x) = 0.2f(x)$$

B

$$f(x) = x$$
$$g(x) = f(0.2x)$$

17Which function applies these transformations to f ?

$$g(x) = a f(b(x-h)) + k$$

$$(x, y) \mapsto \left(\frac{x}{b} + h, ay + k\right)$$

shift down by 4 and shift right by 3

A

$$g(x) = f(x + 4) - 3$$

B

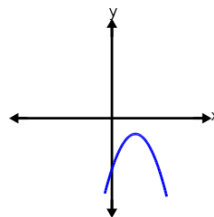
$$g(x) = f(x - 3) - 4$$

18

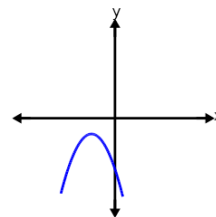
Which graph shows this quadratic function?

$$y = -0.5(x + 3)^2 - 2$$

A



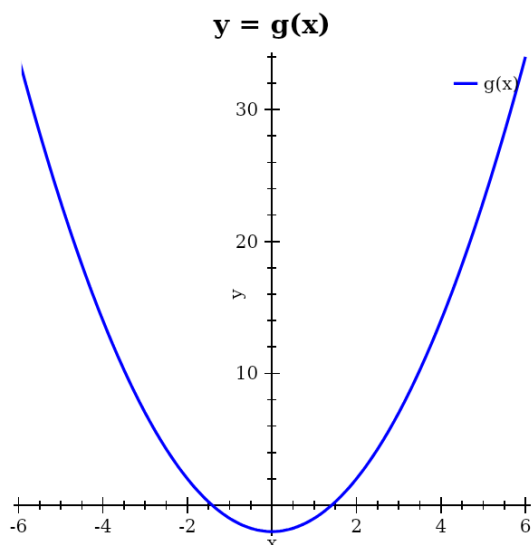
B

**19**Which graph shows the transformation of $f(x)$ into $g(x)$?

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

$$g(x) = f(x) - 2$$

A



B

