



Determine a transformed equation from a graph

1 Standard Form

A $y = x^2 + 2x - 2$

B $y = (x + 3)(x + 3)$

C $y = (x + 4)^2 - 5$

2 What would the vertex of this function be?

$$y = -0.5(x + 1)^2 - 2$$

A (-1, -2)

B (-2, -1)

C (-0.5, -2)

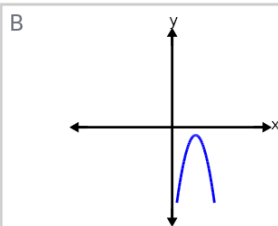
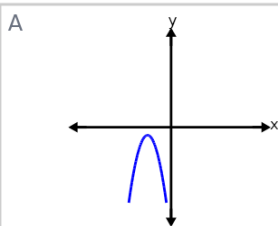
D (-1, 2)

E (1, -2)

F (-0.5, -1)

3 Which graph shows this quadratic function?

$$y = -1.5(x - 3)^2 - 1$$



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

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

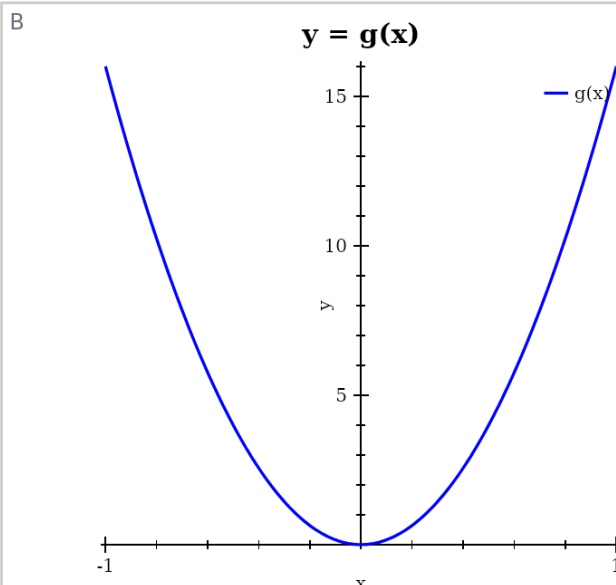
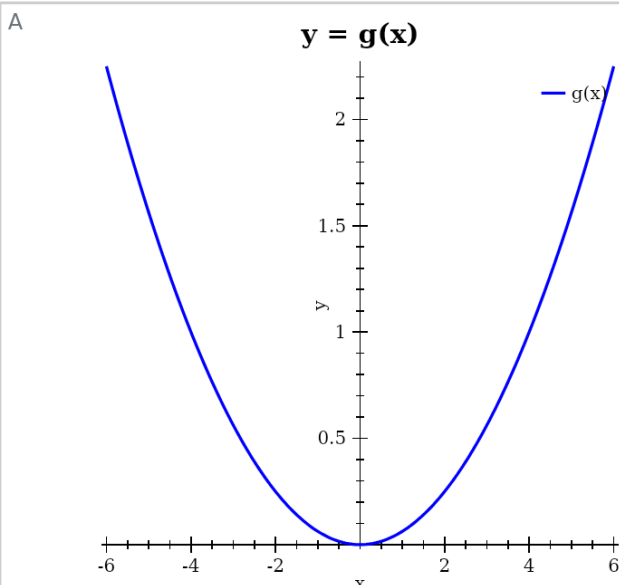
A $(a + 3, b)$

B $(a - 3, b)$

5 Which graph shows this transformation of $f(x)$ into $g(x)$?

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

Horizontal compression : 4)



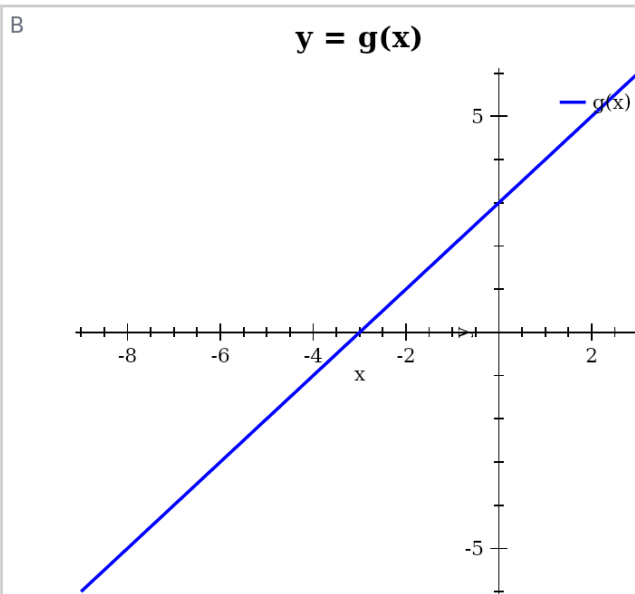
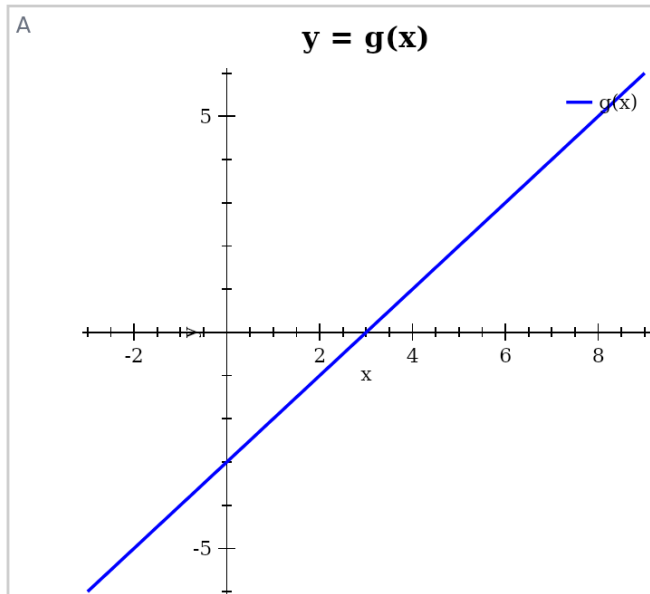


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6Which graph shows the transformation of $f(x)$ into $g(x)$?

$$f(x) = x$$

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

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

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

A

$$(a + m, b)$$

B

$$(a - m, b)$$

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

$$g(x) = f(x + w) - n$$

A

$$(a - w, b - n)$$

B

$$(a - w, b + n)$$

C

$$(a + w, b - n)$$

9If the vertex of $f(x)$ is (a, b) , what is the vertex of $g(x)$?

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

A

$$\left(-\frac{a}{0.33}, b\right)$$

B

$$(a, -0.33 \cdot b)$$

C

$$\left(\frac{a}{0.33}, -b\right)$$



Determine a transformed equation from a graph

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

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

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

$$(a, b - r)$$

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

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

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How is the graph of f transformed to produce g ?

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

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

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

A horizontally compress by a factor of 3

B vertically stretch by a factor of 3

C shift left by 3

D reflect over the x-axis

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

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

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

$$b = 4$$

A reflect over the y-axis

B reflect over the x-axis

C vertically compress by a factor of 4

D horizontally compress by a factor of 4

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

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

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

horizontally compress by a factor of 2

A $a = 2$

B $h = 2$

C $k = 2$

D $b = 2$

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Which function applies this transformation to f ?

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

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

vertically stretch by a factor of 4

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

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

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Which function applies these transformations to f ?

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

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

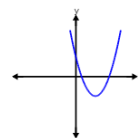
shift left by 2 and shift down by 3

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

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

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Which quadratic function could create this graph?



A $y = -0.5(x + 4)^2 - 4$

B $y = 0.5(x - 4)^2 - 4$

C $y = 0.5(x + 4)^2 - 4$

D $y = -0.5(x - 4)^2 - 4$