



Transformations of Functions

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

Reflect in X – Axis

Shift right : 4

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

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

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

- 2** Which function applies these transformations to f ?

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

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

- 3** How is the graph of f transformed to produce g ?

A shift left by 2 and reflect over the y-axis

B vertically stretch by a factor of 2 and reflect over the x-axis

C shift left by 2 and horizontally compress by a factor of 3

D reflect over the y-axis and horizontally compress by a factor of 3

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

$$(a, -0.25 \cdot b)$$

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

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

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

- 5** What does this transformation produce in $f(x)$?

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

A
Shift right : 4
Shift down : 3

B
Shift left : 3
Shift up : 4

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

$$(a - r, -b)$$

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

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

C $g(x) = -f(x + r)$

- 7** How is the graph of f transformed to produce g ?

A shift left by 3

B shift right by 3

C reflect over the y-axis

D reflect over the x-axis

- 8** Which function applies this transformation to f ?

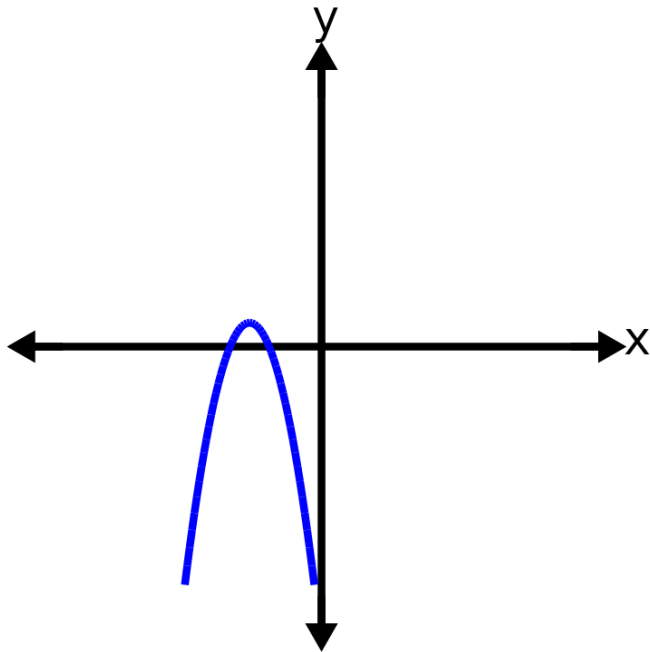
A $g(x) = f(2x)$

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



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9 Which quadratic function could create this graph?



A

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

B

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

C

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

D

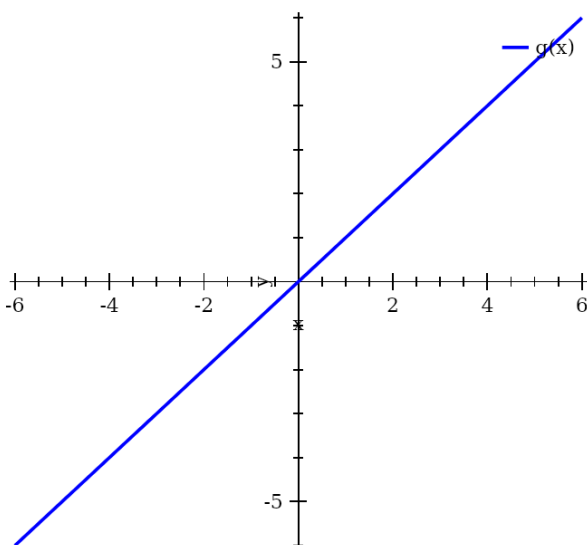
$$y = 1.5(x - 3)^2 + 1$$

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

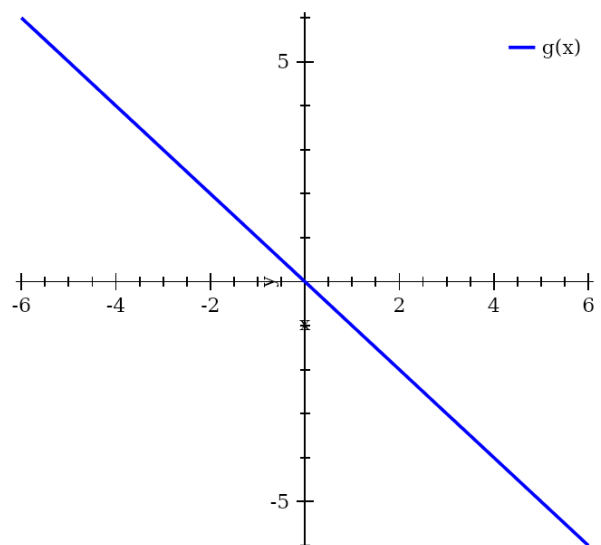
$$f(x) = x$$

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

A

 $y = g(x)$ 

B

 $y = g(x)$ 

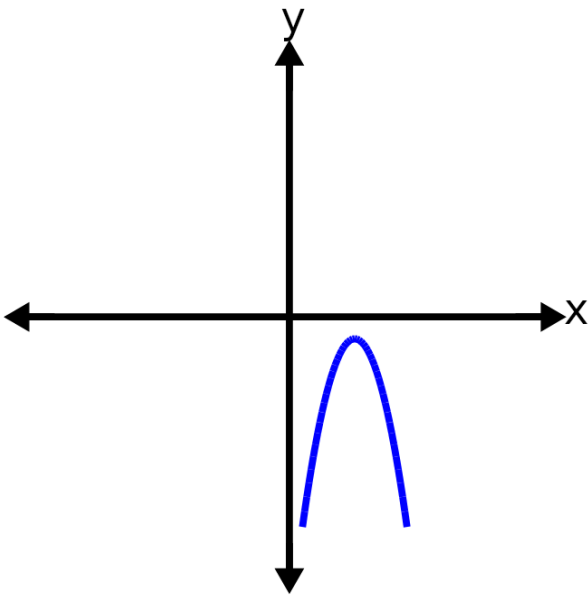


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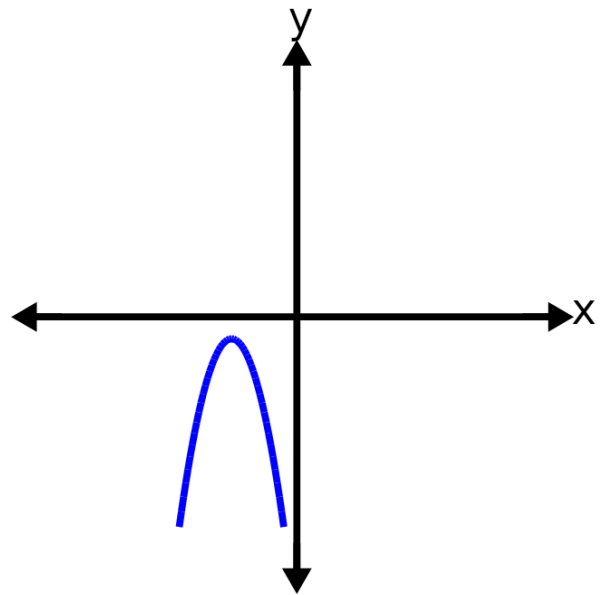
11 Which graph shows this quadratic function?

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

A



B



12 What does this transformation produce in $f(x)$?

$$g(x) = q \cdot f(x)$$
$$q < 1$$

A

Vertical compression : q

B

Vertical stretch : q

C

Horizontal compression : q

13 Reflect point $(-2, -2)$ across the Y axis

$(-2, -2)$

A

$(-2, 2)$

B

$(2, -2)$

14 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

$(a + 2, b)$

C

$(a - 2, b)$

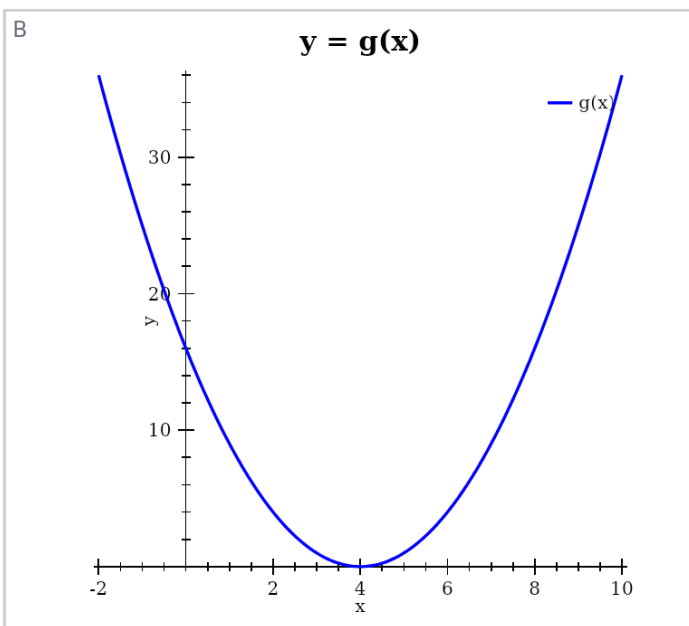
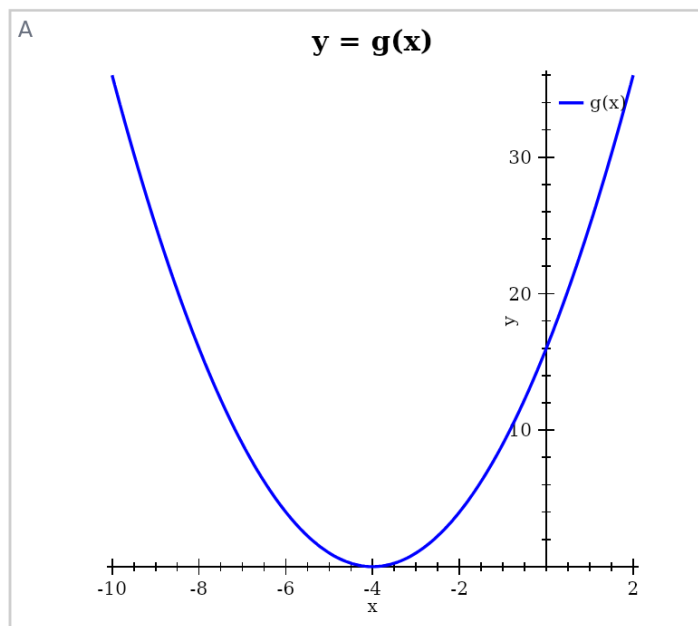


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15 Which graph shows this transformation of $f(x)$ into $g(x)$?

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

Shift right : 4



16 Which function $g(x)$ shows this transformation of $f(x)$?

Vertical stretch : m

A

$$g(x) = f(m \cdot x)$$
$$m < 1$$

B

$$g(x) = m \cdot f(x)$$
$$m > 1$$

C

$$g(x) = m \cdot f(x)$$
$$m < 1$$

17 If the domain of $f(x)$ is $[a, b]$, what is the domain of $g(x)$?

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

A

$$[a, b]$$

B

$$\left[\frac{a}{n}, \frac{b}{n}\right]$$

18 If the range of $f(x)$ is $[a, b]$, which function $g(x)$ would have this range?

$$[a - 3, b - 3]$$

A

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

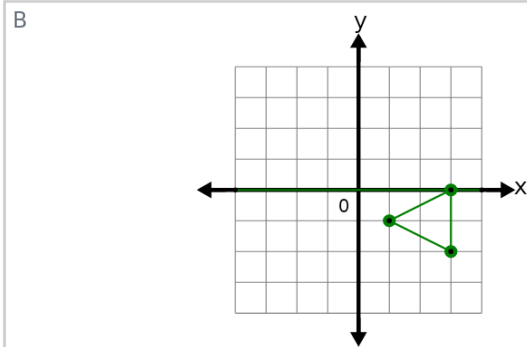
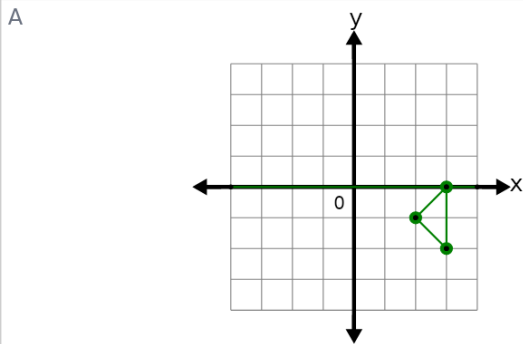
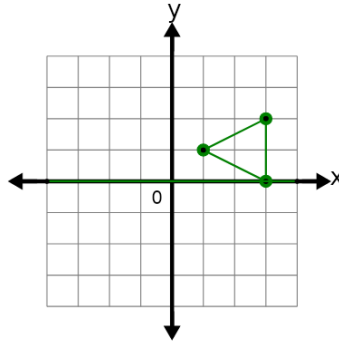
B

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



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19 Reflect this shape across the X axis



20 If the range of $f(x)$ is $[a, b]$, what is the range of $g(x)$?

$$g(x) = -r \cdot f(x)$$

A $[-b, -a]$

B $[-r \cdot b, -r \cdot a]$

C $[r \cdot a, r \cdot b]$

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

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

A $(\frac{a}{0.25}, -b)$

B $(-\frac{a}{0.25}, b)$

21 What does this transformation produce in $f(x)$?

$$g(x) = p \cdot f(x + m)$$

$$p < 1$$

A
Vertical compression : p
Shift left : m

B
Vertical stretch : p
Shift left : m

C
Vertical compression : p
Shift right : m



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- 23** If the domain of $f(x)$ is $[a, b]$, what is the domain of $g(x)$?

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

- A $[a, b]$
- B $[a + 2, b + 2]$
- C $[a - 2, b - 2]$

- 24** If the range of $f(x)$ is $[a, b]$, what is the range of $g(x)$?

$$g(x) = f(-x) + 5$$

- A $[a - 5, b - 5]$
- B $[a + 5, b + 5]$
- C $[5 - b, 5 - a]$

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

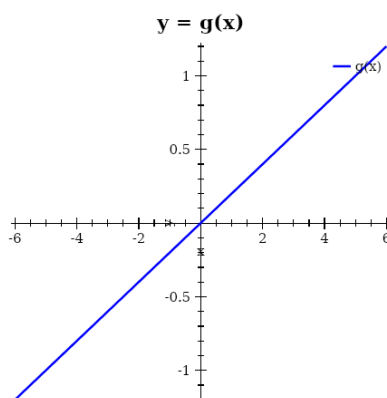
- A shift down by 4
- B vertically stretch by a factor of 4
- C shift right by 4
- D shift left by 4

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

$$(a + 2, b)$$

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

- 27** Which transformed function $g(x)$ is this graph showing?



- A $f(x) = x$
 $g(x) = 0.2f(x)$
- B $f(x) = x$
 $g(x) = f(0.2x)$



Transformations of Functions

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

A

$$h = 2$$

B

$$b = 2$$

C

$$a = 2$$

D

$$a = -2$$

29 Which function $g(x)$ shows this transformation of $f(x)$?

Shift left : 2

A

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

B

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

30 If the range of $f(x)$ is $[a, b]$, which function $g(x)$ would have this range?

$$[a, b]$$

A

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

B

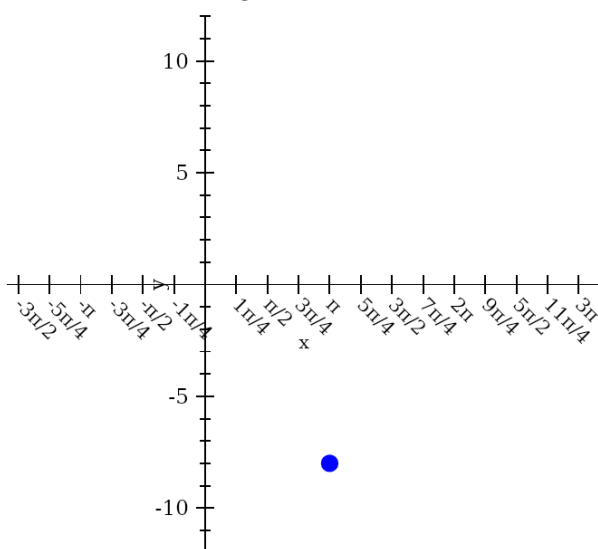
$$g(x) = -f(x)$$

31 Which graph shows the value of this function at $x = \pi$?

$$f(x) = 8 \cos(x)$$

A

$y = f(x)$



B

$y = f(x)$

