



Identify horizontal stretches and compressions

1

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

$$g(x) = a f(b(x-h)) + k$$
$$(x, y) \mapsto \left(\frac{x}{b} + h, ay + k\right)$$

vertically stretch by a factor of 3

A $a = -3$

B $b = 3$

C $h = 3$

D $a = 3$

2

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

3

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

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

A

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

B

$$(a, p \cdot b)$$

4

How is the graph of f transformed to produce g?

$$g(x) = a f(b(x-h)) + k$$
$$(x, y) \mapsto \left(\frac{x}{b} + h, ay + k\right)$$

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

A horizontally compress by a factor of 4

B shift left by 4

C vertically stretch by a factor of 4

D reflect over the x-axis

5

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

6

What does this transformation produce in f(x)?

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

A

Horizontal compression : z

B

Vertical stretch : z

C

Horizontal stretch : z

7

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

$$\left(\frac{a}{4}, b\right)$$

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

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

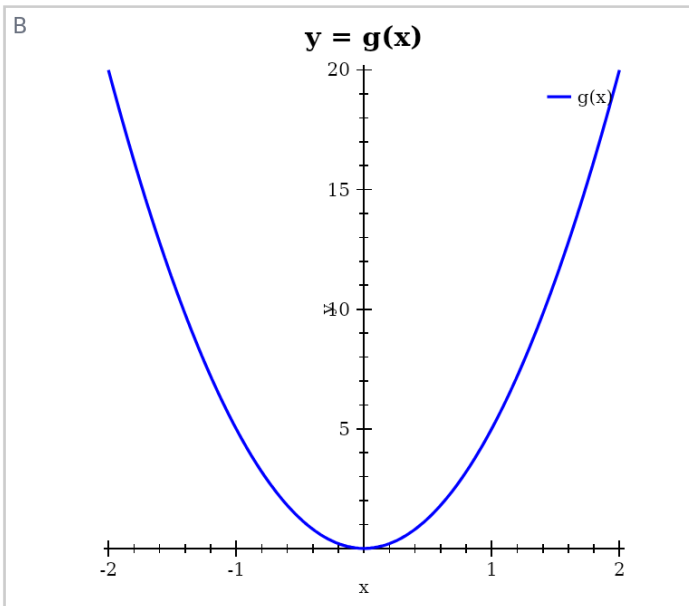
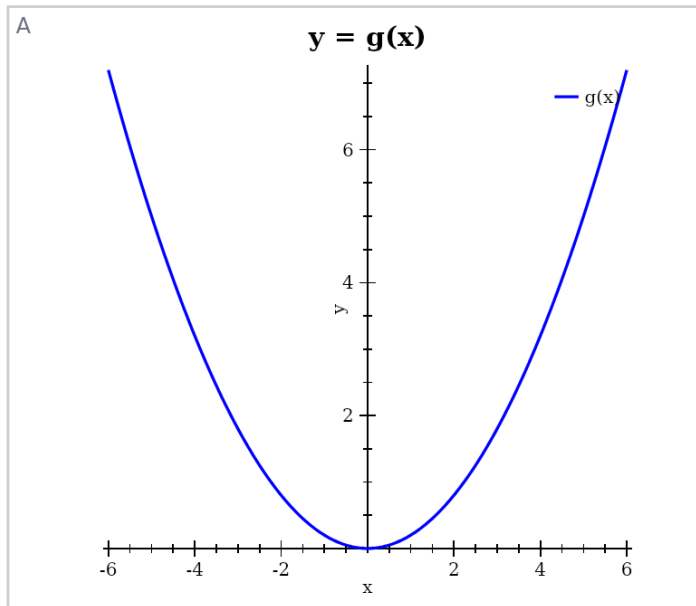


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8Which graph shows the transformation of $f(x)$ into $g(x)$?

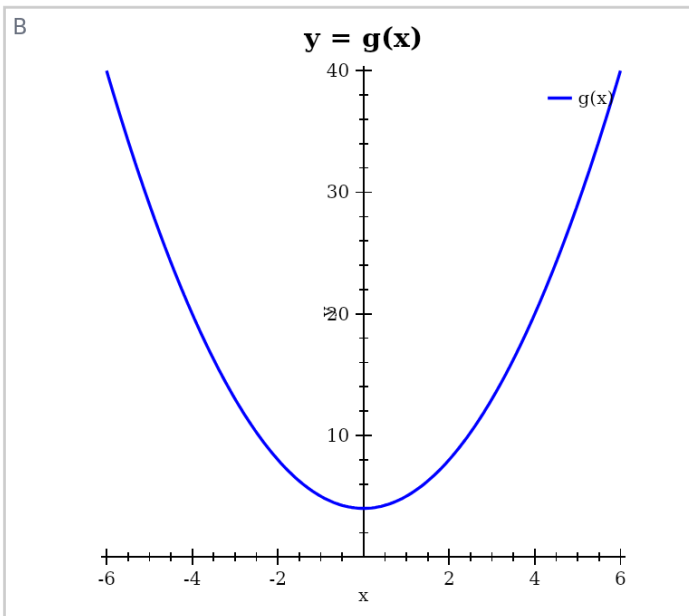
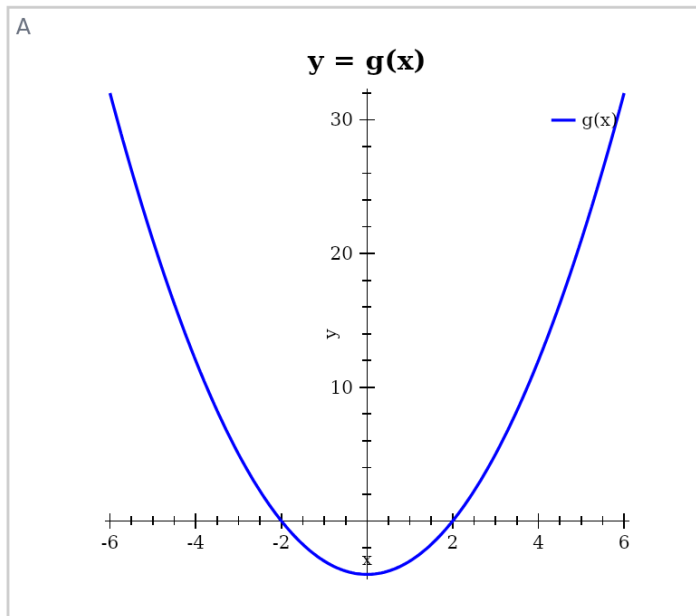
$$f(x) = x^2$$

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

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

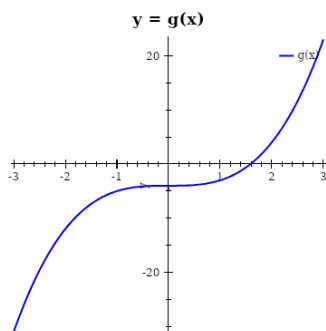
$$f(x) = x^2$$

Shift down : 4





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10What transformation of $f(x)$ does this graph show?

A

$$f(x) = x^3$$

Shift down : 4

B

$$f(x) = x^3$$

Shift up : 4

11How is the graph of f transformed to produce g ?

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

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

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

A

horizontally
stretch by a
factor of 4

B

shift left
by 4

C

vertically
stretch by a
factor of 4

D

vertically
compress by a
factor of 4**12**Which function $g(x)$ shows this transformation of $f(x)$?

Horizontal compression : 3)

A

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

B

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