



Function Transformations (Definition) - Double Transformation (Variables) to

Definition

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

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

$$p < 1$$

A Horizontal compression: p
Shift left: t

C Vertical compression: p
Shift left: t

B Vertical stretch: p
Shift left: t

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

$$g(x) = w \cdot f(x + r)$$

$$w > 1$$

A Vertical stretch: w
Shift left: r

C Horizontal stretch: w
Shift left: r

B Vertical stretch: w
Shift down: r

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

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

$$z < 1$$

A Reflect in X-Axis
Horizontal compression: z

C Reflect in X-Axis
Vertical compression: z

B Reflect in Y-Axis
Vertical compression: z

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

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

$$w < 1$$

A Reflect in Y-Axis
Vertical compression: w

C Reflect in X-Axis
Vertical compression: w

B Reflect in X-Axis
Horizontal compression: w

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

$$g(x) = f(q \cdot x + r)$$

$$q < 1$$

A Horizontal compression: q
Shift left: r

C Vertical stretch: q
Shift left: r

B Horizontal stretch: q
Shift left: r

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

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

$$m > 1$$

A Reflect in Y-Axis
Vertical compression: m

C Reflect in X-Axis
Vertical stretch: m

B Reflect in Y-Axis
Vertical stretch: m

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

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

A Shift left: n
Shift down: p

B Shift right: n
Shift down: p

C Shift left: p
Shift down: n

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

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

$$w < 1$$

A Vertical stretch: w
Shift down: m

C Horizontal stretch: w
Shift left: m

B Horizontal stretch: w
Shift down: m