

Graph Transformations (A)

Right by 5 : $f(x - 5)$

Left by 3 : $f(x + 3)$

Up by 4 : $f(x) + 4$

Down by 3 : $f(x) - 3$

Reflection over x -axis : $-f(x)$

Reflection over y -axis : $f(-x)$

Vertical stretch by a factor of 2 : $2f(x)$

Vertical compression by a factor of 2 : $\frac{1}{2}f(x)$

Horizontal stretch by a factor of 2 : $f(\frac{x}{2})$

Horizontal compression by a factor of 2 : $f(2x)$

Describe fully the transformation of $y = f(x)$ to $y = f(x + 5)$.

Translation to the left by 5.

Describe fully the transformation of $y = f(x)$ to $y = 2f(x) + 3$.

Vertical stretch by a factor of 2 , then a translation up by 3.

Describe fully the transformation of $y = f(x)$ to $y = -f(x - 2)$.

Translation to the right by 2 , then a reflection over the x -axis.