FUNCTION TRANSFORMATIONS

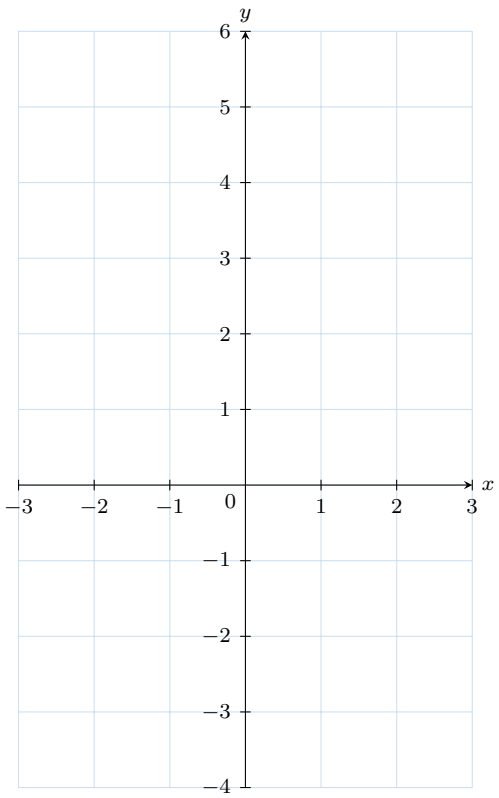
A TRANSLATION

A.1 TRANSLATING GRAPHS VERTICALLY

Ex 1: For the functions $f(x) = x$ and $g(x) = x + 3$:

1. On the same set of axes, sketch the graphs of f and g. (You may fill in a table of values for $x = -3, -2, -1, 0, 1, 2, 3$.)

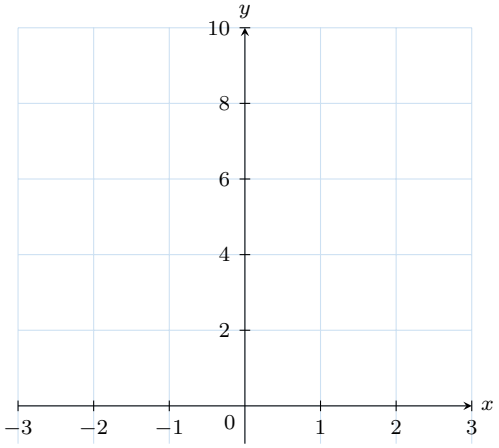
2. Find the geometrical transformation between these two graphs.



Ex 2: For the functions $f(x) = x^2$ and $g(x) = x^2 + 2$:

1. On the same set of axes, sketch the graphs of f and g. (You may fill in a table of values for $x = -3, -2, -1, 0, 1, 2, 3$.)

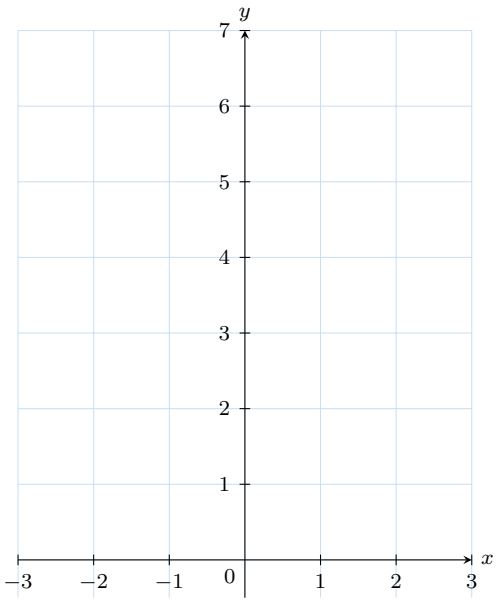
2. Find the geometrical transformation between these two graphs.



Ex 3: For the functions $f(x) = \dfrac{4}{1+x^2}$ and $g(x) = \dfrac{4}{1+x^2} + 3$:

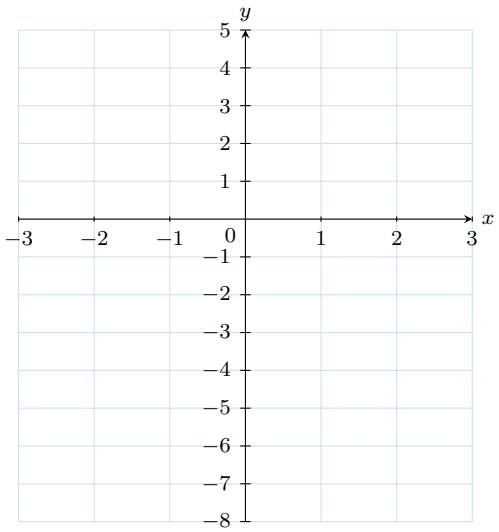
1. On the same set of axes, sketch the graphs of f and g. (You may fill in a table of values for $x = -3, -2, -1, 0, 1, 2, 3$.)

2. Find the geometrical transformation between these two graphs.



Ex 4: For the functions $f(x) = -(x-2)(x+2)$ and $g(x) = -(x-2)(x+2) - 2$:

1. On the same set of axes, sketch the graphs of f and g. (You may fill in a table of values for $x = -3, -2, -1, 0, 1, 2, 3$.)
2. Find the geometrical transformation between these two graphs.

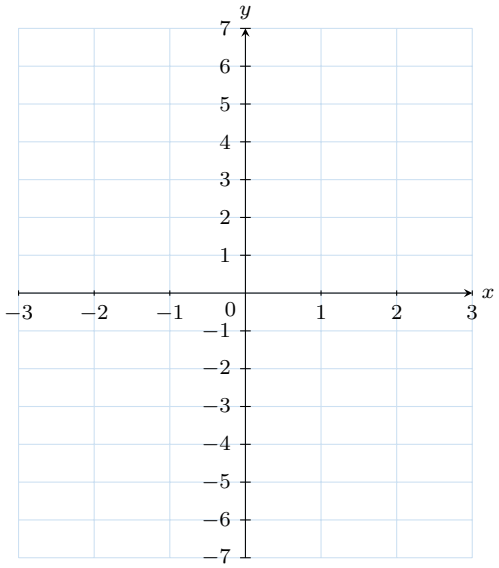


B DILATION

B.1 DILATING GRAPHS VERTICALLY

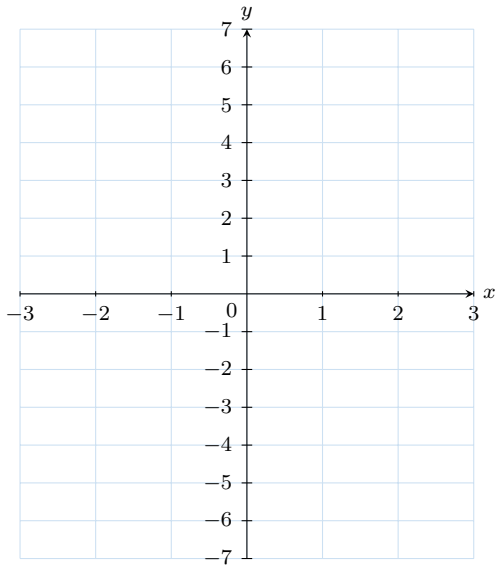
Ex 5: For the functions $f(x) = x$ and $g(x) = 2x$:

1. On the same set of axes, sketch the graphs of f and g. (You may fill in a table of values for $x = -3, -2, -1, 0, 1, 2, 3$.)
2. Find the geometrical transformation between these two graphs.



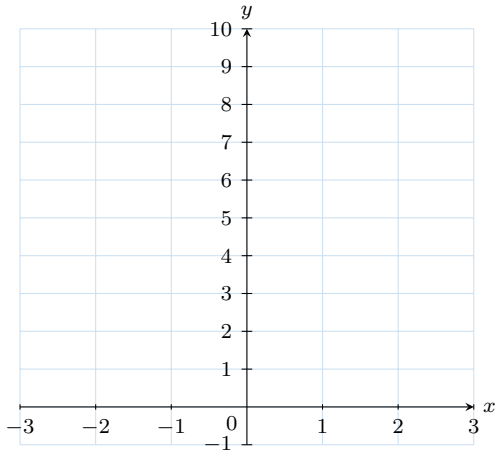
Ex 6: For the functions $f(x) = \dfrac{x}{2}$ and $g(x) = 2x$:

1. On the same set of axes, sketch the graphs of f and g. (You may fill in a table of values for $x = -3, -2, -1, 0, 1, 2, 3$.)
2. Find the geometrical transformation between these two graphs.



Ex 7: For the functions $f(x) = x^2$ and $g(x) = \dfrac{x^2}{2}$:

1. On the same set of axes, sketch the graphs of f and g. (You may fill in a table of values for $x = -3, -2, -1, 0, 1, 2, 3$.)
2. Find the geometrical transformation between these two graphs.

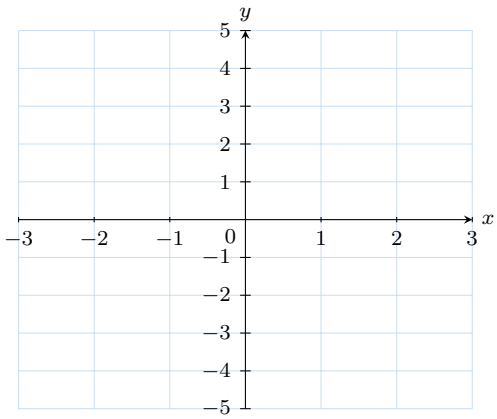


C REFLECTION

C.1 REFLECTING GRAPHS

Ex 8: For the functions $f(x) = x - 1$ and $g(x) = -(x - 1)$:

1. On the same set of axes, sketch the graphs of f and g. (You may fill in a table of values for $x = -3, -2, -1, 0, 1, 2, 3$.)
2. Find the geometrical transformation between these two graphs.



Ex 9: For the functions $f(x) = x - 1$ and $g(x) = -x - 1$:

1. On the same set of axes, sketch the graphs of f and g. (You may fill in a table of values for $x = -3, -2, -1, 0, 1, 2, 3$.)
2. Find the geometrical transformation between these two graphs.