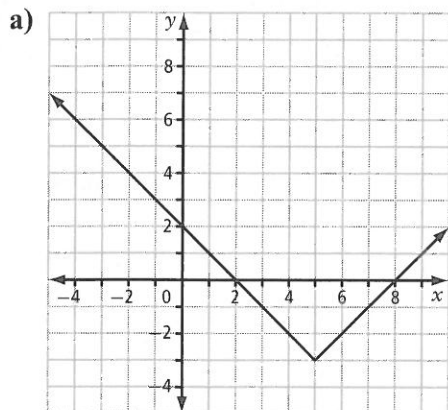


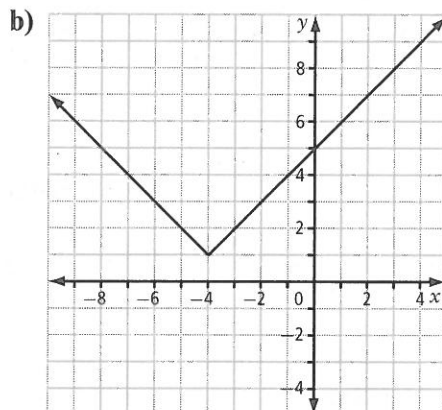
## Chapter 1 Review

### 1.1 Horizontal and Vertical Translations, pages 1–8

1. Write an equation to represent each translation of the function  $y = |x|$ .



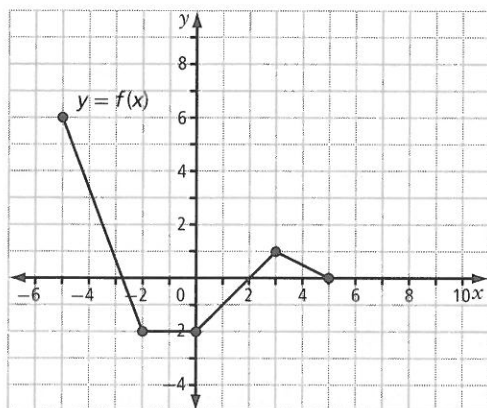
Equation: \_\_\_\_\_



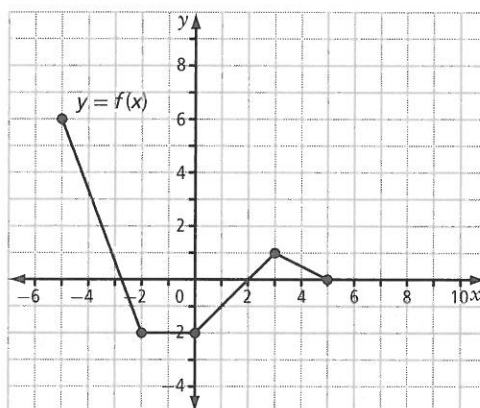
Equation: \_\_\_\_\_

2. For  $y = f(x)$  as shown, graph the following.

a)  $y - 2 = f(x - 3)$



b)  $y + 2 = f(x + 1)$



### 1.2 Reflections and Stretches, pages 9–17

3. The key point  $(12, -5)$  is on the graph of  $y = f(x)$ . Determine the coordinates of its image point under each transformation.

a)  $y = -f(x)$

$(x, y) \rightarrow$

$(12, -5) \rightarrow$

b)  $y = f(-4x)$

$(x, y) \rightarrow$

$(12, -5) \rightarrow$

c)  $y = 2f\left(\frac{1}{3}x\right)$

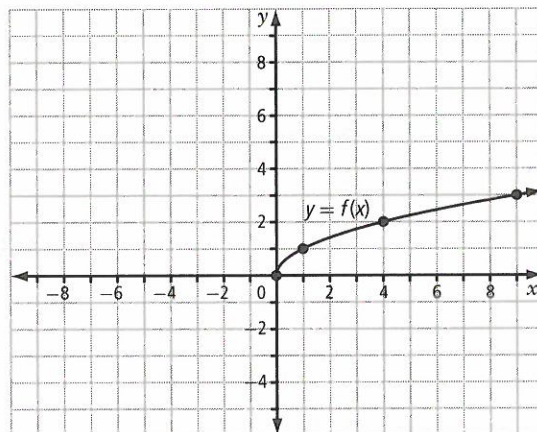
$(x, y) \rightarrow$

$(12, -5) \rightarrow$

4. Describe the following transformations of  $y = f(x)$  and sketch a graph of each transformation.

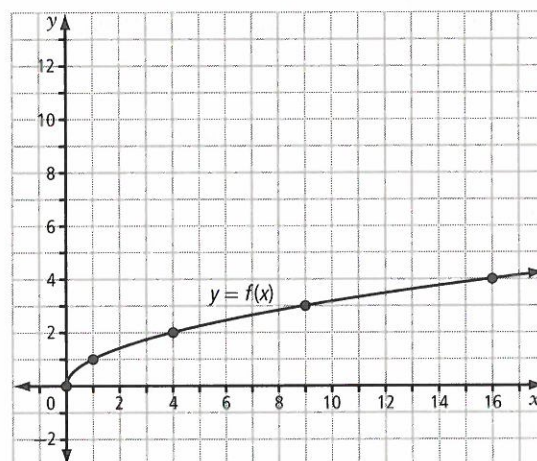
a)  $y = -f(-x)$

Description:



b)  $y = 3f(2x)$

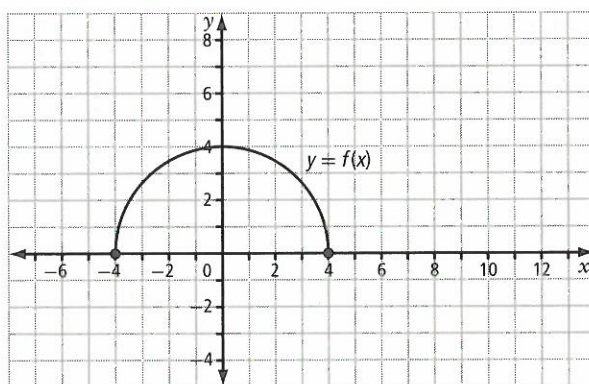
Description:



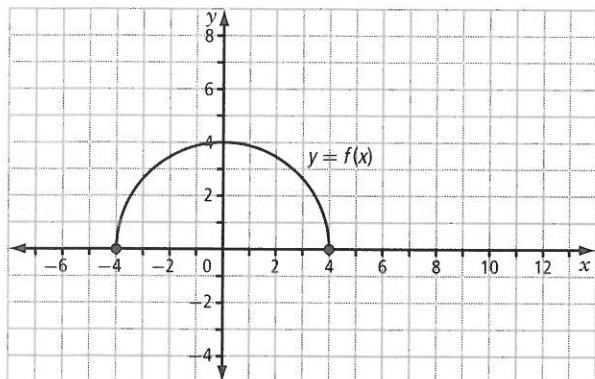
### 1.3 Combining Transformations, pages 18–25

5. The graph of the function  $y = f(x)$  is given. Graph each of the following transformations of the function. Show each stage of the transformation in a different colour.

a)  $y - 5 = \frac{1}{2}f\left(\frac{2}{3}(x - 6)\right)$



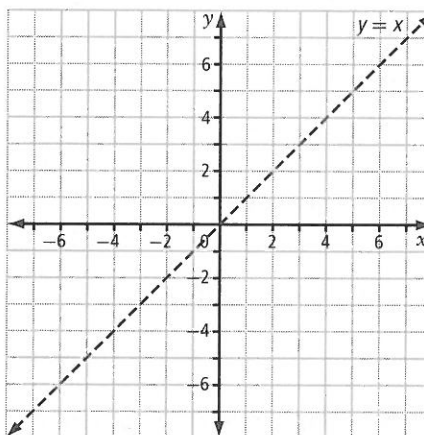
b)  $y = -f(4x + 12)$



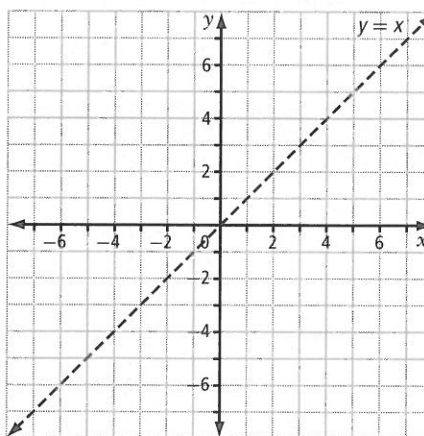
### 1.4 Inverse of a Relation, pages 26–34

6. Determine algebraically the inverse of each function. If necessary, restrict the domain so that the inverse of  $f(x)$  is also a function. Verify by sketching the graph of the function and its inverse.

a)  $f(x) = -\frac{1}{2}x + 5$



b)  $f(x) = 2(x - 1)^2$



## Chapter 1 Skills Organizer

Complete the tables to review the key concepts you have learned in this chapter about transformations and functions.

### Transformation of Functions

Transformation	Parameter	Effect on Graph of $y = f(x)$		
		Location	Shape	Orientation
Vertical translation	_____ $> 0$			
	_____ $< 0$			
Horizontal translation	_____ $> 0$			
	_____ $< 0$			
Reflection: $y = -f(x)$	_____ $< 0$			
Reflection: $y = f(-x)$	_____ $< 0$			
Vertical stretch	factor of  _____			
Horizontal stretch	factor of $\frac{1}{\text{_____}}$			
Order of transformations: _____ _____ _____				

### Inverse of a Relation

Function	Inverse
$y = f(x)$	_____
Domain: A	Domain: _____
Range: B	Range: _____
The inverse, $f^{-1}$ , of the function $f$ maps $y$ to $x$ if and only if _____.	