

## Study Aid

- For help, see the Review of Essential Skills found at the Nelson Advanced Functions website.

Question	Appendix
2	R-3
3	R-8, R-12

## SKILLS AND CONCEPTS You Need

1. Evaluate  $f(x) = x^2 + 3x - 4$  for each of the following values.

a)  $f(2)$       b)  $f(-1)$       c)  $f\left(\frac{1}{4}\right)$       d)  $f(a + 1)$

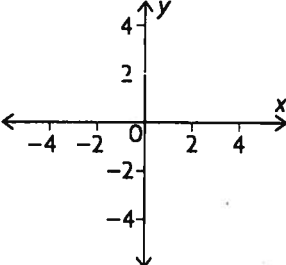
2. Factor each of the following expressions.

a)  $x^2 + 2xy + y^2$       c)  $(x + y)^2 - 64$   
 b)  $5x^2 - 16x + 3$       d)  $ax + bx - ay - by$

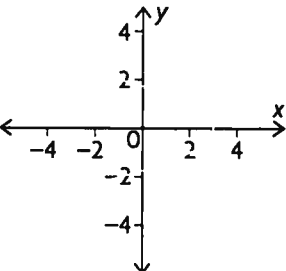
3. State the **transformations** that are applied to each **parent function**, resulting in the given transformed function. Sketch the graphs of the parent function and transformed function.

a)  $f(x) = x^2, y = f(x - 3) + 2$       c)  $g(x) = \sin x, y = -2g(0.5x)$   
 b)  $f(x) = 2^x, y = f(x - 1) + 2$       d)  $g(x) = \sqrt{x}, y = -2g(2x)$

4. State the **domain** and **range** of each function.

a)       b)  $f(x) = x^2 - 6x - 10$   
 c)  $y = \frac{1}{x}$   
 d)  $y = 3 \sin x$   
 e)  $g(x) = 10^x$

5. Which of the following represent functions? Explain.

a)       b)  $y = 2(x - 1)^2 + 3$   
 c)  $y = \pm\sqrt{x} - 4$   
 d)  $y = 2^x - 4$   
 e)  $y = \cos(2(x - 30^\circ) + 1)$

6. Consider the **relation**  $y = x^3$ .

- a) If  $(2, n)$  is a point on its graph, determine the value of  $n$ .  
 b) If  $(m, 20)$  is a point on its graph, determine  $m$  correct to two decimal places.

7. A function can be described or defined in many ways. List these different ways, and explain how each can be used to determine whether a relation is a function.