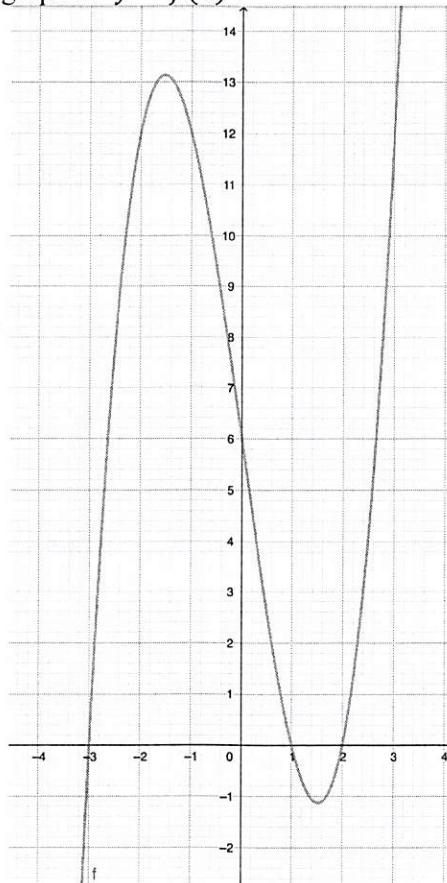


Chapter 5 – Extra Practice

1. Consider the following graph of $y = f(x)$:



a) Explain why it is a function *vertical line test passed*

b) Domain : \mathbb{R} Range : \mathbb{R}

c) Determine the following values :

$$f(0) = 6$$

$$f(1) = 0$$

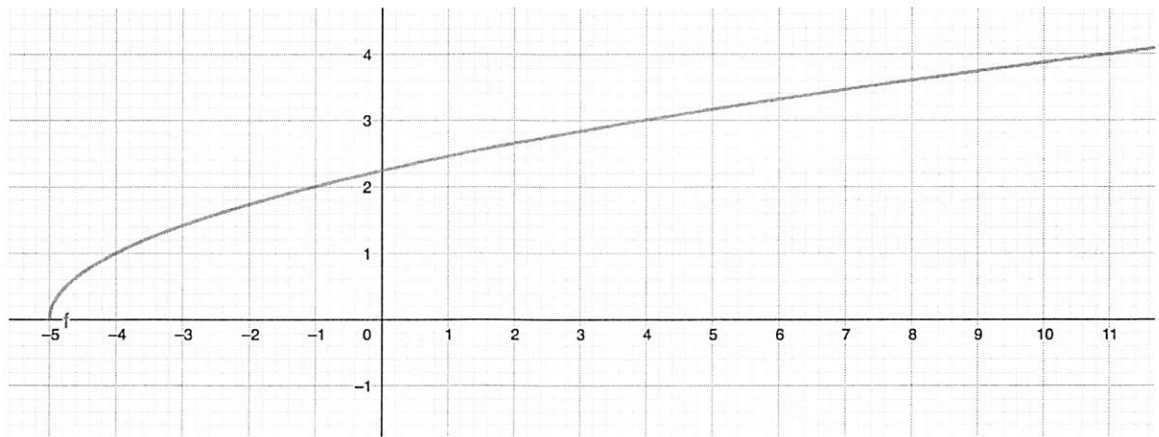
$$f(2) = 0$$

$$f(-2) = 12$$

d) Determine x such that $f(x) = 0$ $x = -3, 1, 2$

e) Determine x such that $f(x) = 12$ $x = -2, -1, 3$

2. Consider the following graph of $y = f(x)$:



b) Domain : $[-4, +\infty)$ Range : $[0, +\infty)$

c) Determine the following values :

$$f(-5) = 0$$

$$f(-1) = 2$$

$$f(4) = 3$$

$$f(0) = \approx 2.25$$

d) Determine x such that $f(x) = 1$ $x = -4$

e) Determine x such that $f(x) = 4$ $x = 11$

3. Consider the function $f(x) = 3x + 5$

a) Determine $f(-2) = 3(-2) + 5 = -1$

b) Determine $f(3) = 3 \times 3 + 5 = 14$

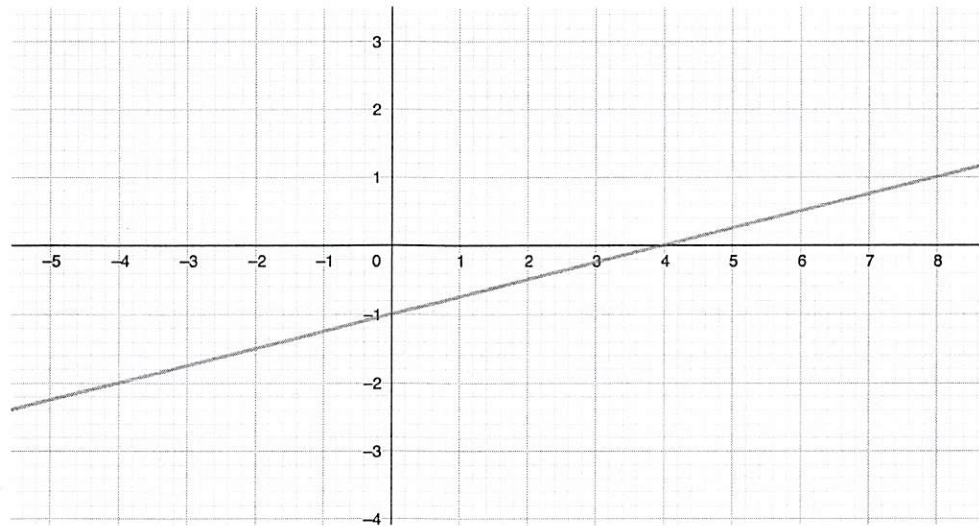
c) Determine the exact value of x such that $f(x) = 25$

$$3x + 5 = 25$$

$$3x = 20$$

$$x = \frac{20}{3}$$

4. Consider the following graph of $y = f(x)$:



b) Domain : \mathbb{R} Range : \mathbb{R}

c) Determine the following values :

$$f(0) = -1$$

$$f(-4) = -2$$

d) Determine x such that $f(x) = 0$ $x = 4$

e) Determine x such that $f(x) = 1$ $x = 8$

5. Consider the function $f(x) = -2x^2 + 3$

a) Determine $f(-2) = -2(-2)^2 + 3 = -2 \times 4 + 3 = -5$

b) Determine $f(3) = -2(3)^2 + 3 = -2 \times 9 + 3 = -18 + 3 = -15$

c) Determine the exact value(s) of x such that $f(x) = -15$

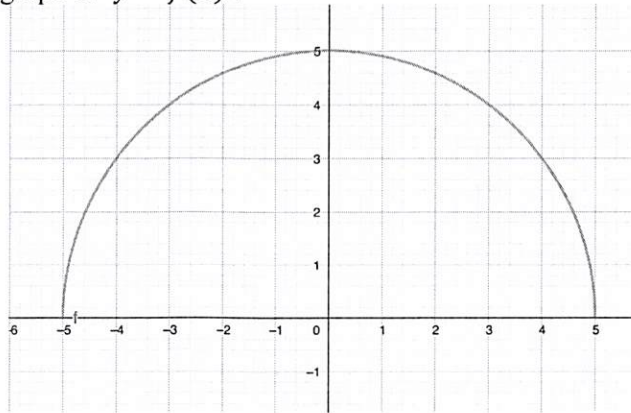
$$-2x^2 + 3 = -15$$

$$-2x^2 = -18$$

$$x^2 = 9$$

FH Collins – Fleur Marsella $x = 3$ or $x = -3$

6. Consider the following graph of $y = f(x)$:



b) Domain : $[-5, 5]$ Range : $[0, 5]$

c) Determine the following values :

$$f(-5) = 0$$

$$f(-4) = 3$$

$$f(0) = 5$$

$$f(3) = 4$$

d) Determine x such that $f(x) = 0$ $x = -5$ or $x = 5$

e) Determine x such that $f(x) = 3$ $x = -4$ or $x = 4$

7. Consider the function $f(x) = (x - 3)(x + 1)$

a) Determine $f(-2) = (-2 - 3)(-2 + 1) = -5 \times (-1) = 5$

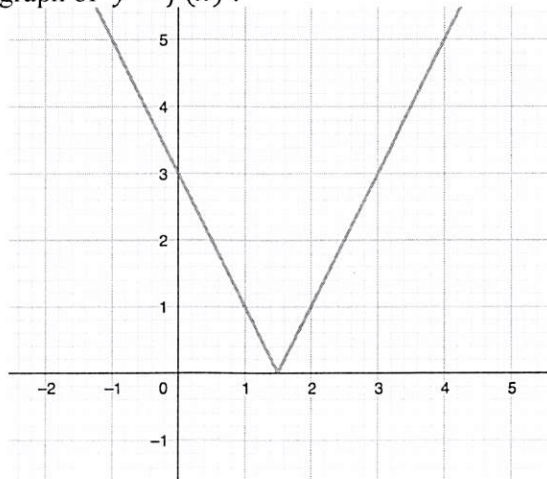
b) Determine $f(3) = (3 - 3)(3 + 1) = 0 \times 4 = 0$

8. Consider the function $f(x) = -x^2 + 4x - 2$

a) Determine $f(-2) = -(-2)^2 + 4(-2) - 2 = -4 - 8 - 2 = -14$

b) Determine $f(3) = -(3)^2 + 4(3) - 2 = -9 + 12 - 2 = 1$

9. Consider the following graph of $y = f(x)$:



b) Domain : \mathbb{R}

Range : $[0, +\infty)$

c) Determine the following values :

$$f(0) = 3$$

$$f(1) = 1$$

$$f(2) = 1$$

$$f(3) = 3$$

d) Determine x such that $f(x) = 0$

$$x = 1.5$$

e) Determine x such that $f(x) = 5$

$$x = -1 \text{ or } x = 4$$

10. Consider the function $f(x) = -x + 5$

a) Determine $f(-2) = -(-2) + 5 = 7$

b) Determine $f(3) = -(3) + 5 = 2$

c) Determine the exact value(s) of x such that $f(x) = -15$

$$-x + 5 = -15$$

$$-x = -20$$

$$\underline{x = 20}$$

d) Determine the exact value(s) of x such that $f(x) = 72$

$$-x + 5 = 72$$

$$-x = 67$$

$$\underline{x = -67}$$