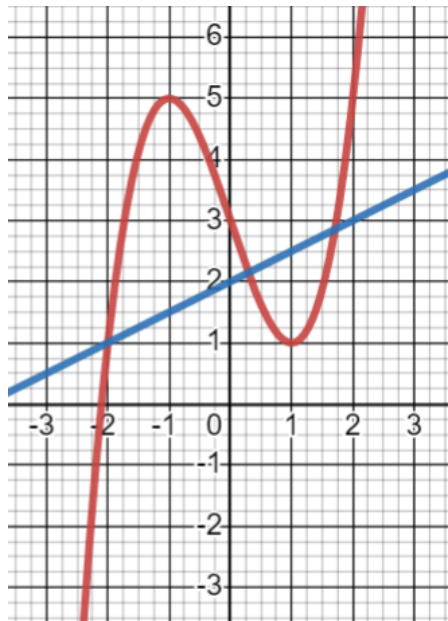


Algebra Revision

5

(a)
 (i) Plot the graph of
 $y = x^3 - 3x + 3$
 where $-2 \leq x \leq 2$



(ii) By plotting a straight line on the graph, find approximate solutions to the equation

$$x^3 - 3x + 3 = 0.5x + 2$$

$$x = -2, x = 0.3, x = 1.7$$

(b)
 Solve $3x^2 - 5x - 1 = 0$
 giving your answers to 3
 significant figures

$$x = 1.85, x = -0.180$$

(e)
 Find the gradient of the line
 segment joining $(1, -5)$ and
 $(-1, 2)$

$$-\frac{7}{2}$$

(f)
 Simplify $\frac{5}{2x} + \frac{x+1}{x} - \frac{3}{5x}$

$$\frac{10x + 29}{10x}$$

(c)
 Find the equation of the line
 that is perpendicular to
 $y = -3x + 1$ and passes
 through the point $(4, -2)$

$$y = \frac{1}{3}x - \frac{10}{3}$$

(g)
 Write $2x^2 - 8x - 5$ in the
 form $a(x - b)^2 + c$

$$2(x - 2)^2 - 13$$

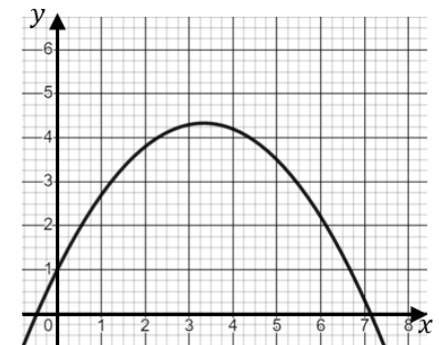
(d)
 y is directly proportional to the
 cube of x . When $x = 5$, $y = 25$.
 (i) Find an equation for y in
 terms of x .

$$y = 0.2x^3$$

(ii) Find the value of x when
 $y = 12.8$

$$x = 4$$

(h)
 Use the graph to find an
 estimate of the gradient at the
 point where $x = 5$



$$-1$$