1. Find the equation of the line passing through (−1, −9) and (3, 11). Give your answer in the form \( y = mx + c \). [3]

2. (i) Find the points of intersection of the line \( 2x + 3y = 12 \) with the axes. [2]
   (ii) Find also the gradient of this line. [2]

3. (i) Express \( x^2 - 6x + 2 \) in the form \((x - a)^2 - b\). [3]
   (ii) State the coordinates of the turning point on the graph of \( y = x^2 - 6x + 2 \). [2]
   (iii) Sketch the graph of \( y = x^2 - 6x + 2 \). You need not state the coordinates of the points where the graph intersects the \( x \)-axis. [2]
   (iv) Solve the simultaneous equations \( y = x^2 - 6x + 2 \) and \( y = 2x - 14 \). Hence show that the line \( y = 2x - 14 \) is a tangent to the curve \( y = x^2 - 6x + 2 \). [5]

4. Find, algebraically, the coordinates of the point of intersection of the lines \( y = 2x - 5 \) and \( 6x + 2y = 7 \). [4]

5. (i) Find the gradient of the line \( 4x + 5y = 24 \). [2]
   (ii) A line parallel to \( 4x + 5y = 24 \) passes through the point (0, 12). Find the coordinates of its point of intersection with the \( x \)-axis. [3]
Fig. 10 shows a sketch of the graph of $y = \frac{1}{x}$.

Sketch the graph of $y = \frac{1}{x-2}$, showing clearly the coordinates of any points where it crosses the axes. [3]

(ii) Find the value of $x$ for which $\frac{1}{x-2} = 5$. [2]

(iii) Find the $x$-coordinates of the points of intersection of the graphs of $y = x$ and $y = \frac{1}{x-2}$. Give your answers in the form $a \pm \sqrt{b}$. Show the position of these points on your graph in part (i). [6]

7 Find, in the form $y = ax + b$, the equation of the line through (3, 10) which is parallel to $y = 2x + 7$. [3]