THE LINE (Q 2, PAPER 2)

2006



Χ,

2 (a) (ii)

You can see the line cuts the y-axis at (0, 5).

2 (a) (iii)





2 (b) (ii)

The *y*-axis has an equation x = 0. This is parallel to the line x = 3. You need to find out where the lines *L* and *K* intersect these lines.

Points of intersection of *L*: 3x + 2y - 7 = 0 with: x = 0: $3(0) + 2y - 7 = 0 \Rightarrow 2y = 7$ $\Rightarrow y = \frac{7}{2} \Rightarrow (0, \frac{7}{2})$ is a point of intersection. x = 3: $3(3) + 2y - 7 = 0 \Rightarrow 9 + 2y = 7$ $\Rightarrow 2y = -2 \Rightarrow y = -1 \Rightarrow (0, -1)$ is a point of intersection. Points of intersection of *K*: 3x + 2y - 4 = 0 with: x = 0: $3(0) + 2y - 4 = 0 \Rightarrow 0 + 2y = 4$ $\Rightarrow y = 2 \Rightarrow (0, 2)$ is a point of intersection. x = 3: $3(3) + 2y - 4 = 0 \Rightarrow 9 + 2y = 4$

 $\Rightarrow 2y = -5 \Rightarrow y = -\frac{5}{2} \Rightarrow (3, -\frac{5}{2})$ is a point of intersection.

The co-ordinates of the vertices of the parallelogram are: $(0, 2), (3, -\frac{5}{2}), (0, \frac{7}{2}), (3, -1)$



Vertical lines have equations where x = constant. In particular, the *y*-axis has the equation x = 0.