

Coordinate Geometry – C1 Past Paper Questions

1. The line L has equation $y = 5 - 2x$.

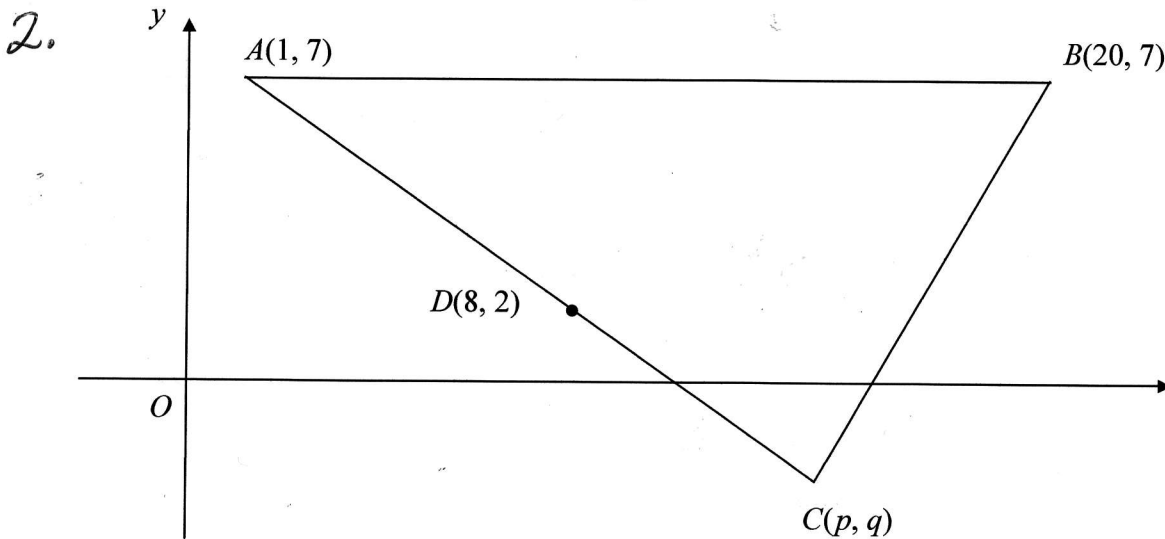
(a) Show that the point $P(3, -1)$ lies on L .

(1)

(b) Find an equation of the line perpendicular to L , which passes through P . Give your answer in the form $ax + by + c = 0$, where a , b and c are integers.

(4)

Figure 2



The points $A(1, 7)$, $B(20, 7)$ and $C(p, q)$ form the vertices of a triangle ABC , as shown in Figure 2. The point $D(8, 2)$ is the mid-point of AC .

(a) Find the value of p and the value of q .

(2)

The line l , which passes through D and is perpendicular to AC , intersects AB at E .

(b) Find an equation for l , in the form $ax + by + c = 0$, where a , b and c are integers.

(5)

(c) Find the exact x -coordinate of E .

(2)

3. The straight line l_1 with equation $y = \frac{3}{2}x - 2$ crosses the y -axis at the point P . The point Q has coordinates $(5, -3)$.

(a) Calculate the coordinates of the mid-point of PQ . (3)

The straight line l_2 is perpendicular to l_1 and passes through Q .

(b) Find an equation for l_2 in the form $ax + by = c$, where a , b and c are integer constants. (4)

The lines l_1 and l_2 intersect at the point R .

(c) Calculate the exact coordinates of R . (4)

4. The line l_1 passes through the point $(9, -4)$ and has gradient $\frac{1}{3}$.

(a) Find an equation for l_1 in the form $ax + by + c = 0$, where a , b and c are integers. (3)

The line l_2 passes through the origin O and has gradient -2 . The lines l_1 and l_2 intersect at the point P .

(b) Calculate the coordinates of P . (4)

Given that l_1 crosses the y -axis at the point C ,

(c) calculate the exact area of $\triangle OCP$. (3)

5. The line l_1 passes through the points $P(-1, 2)$ and $Q(11, 8)$.

(a) Find an equation for l_1 in the form $y = mx + c$, where m and c are constants. (4)

The line l_2 passes through the point $R(10, 0)$ and is perpendicular to l_1 . The lines l_1 and l_2 intersect at the point S .

(b) Calculate the coordinates of S . (5)

(c) Show that the length of RS is $3\sqrt{5}$. (2)

(d) Hence, or otherwise, find the exact area of triangle PQR . (4)