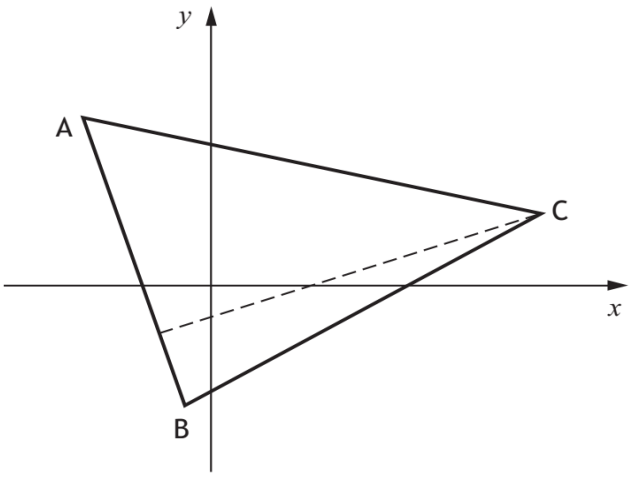
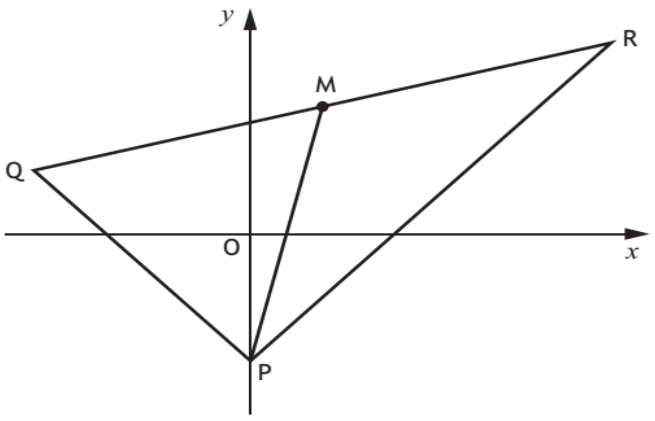
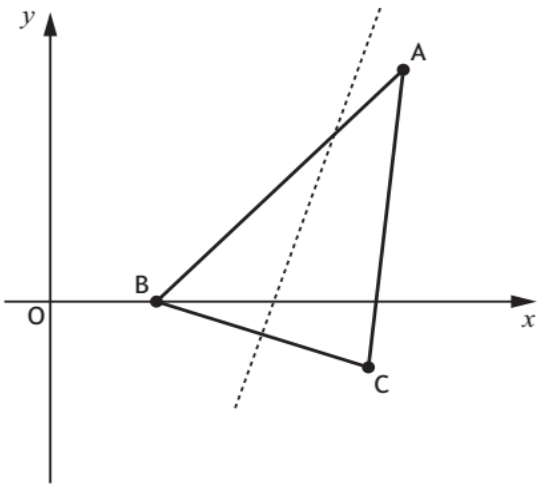
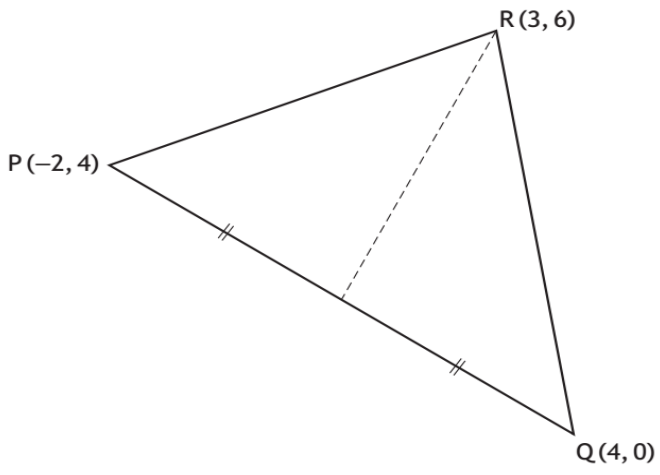
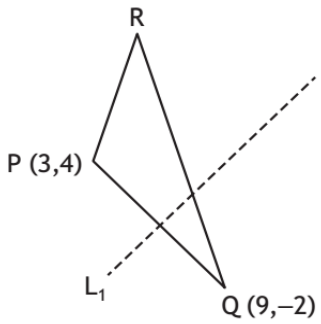
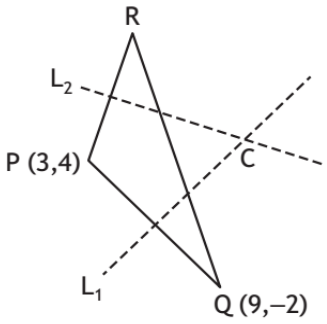
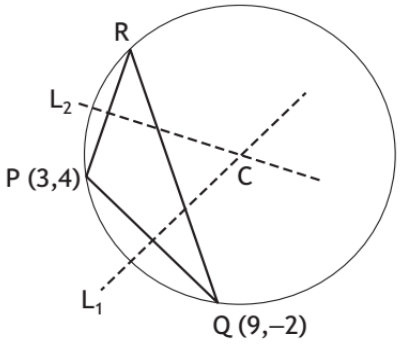
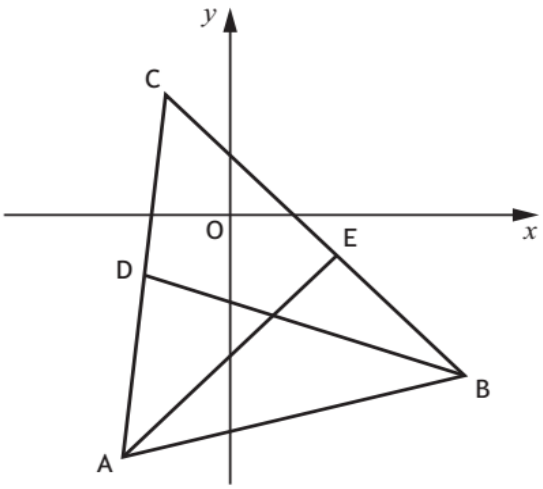
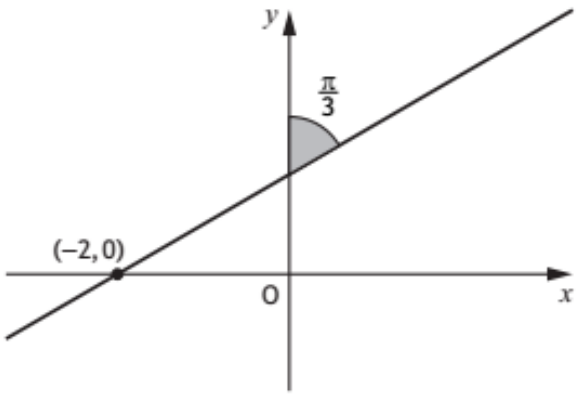
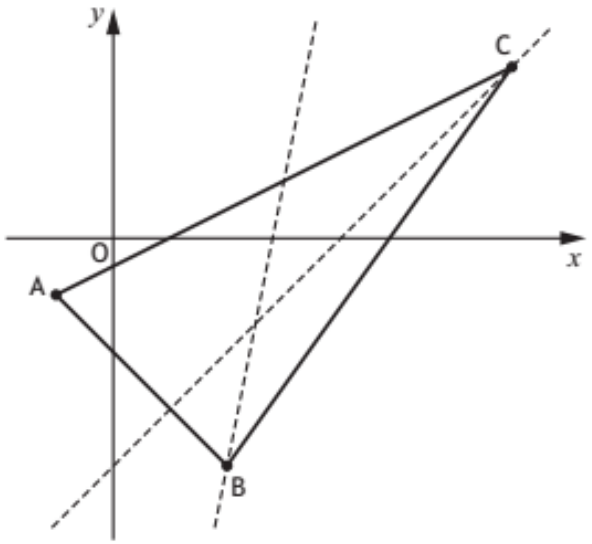
Y	Q	P	THE STRAIGHT LINE
15	9	1	A, B and C are points such that AB is parallel to the line with equation $y + \sqrt{3}x = 0$ and BC makes an angle of $150°$ with the positive direction of the x-axis. Are the points A, B and C collinear? **3**
15	1	2	The vertices of triangle ABC are A$(-5, 7)$, B$(-1, -5)$ and C$(13, 3)$ as shown in the diagram. The broken line represents the altitude from C.  (a) Show that the equation of the altitude from C is $x - 3y = 4$. **4** (b) Find the equation of the median from B. **3** (c) Find the coordinates of the point of intersection of the altitude from C and the median from B. **2**
16	1	1	Find the equation of the line passing through the point $(-2, 3)$ which is parallel to the line with equation $y + 4x = 7$. **2**
16	1	2	PQR is a triangle with vertices P$(0,-4)$, Q$(-6,2)$ and R$(10,6)$.  (a) (i) State the coordinates of M, the midpoint of QR. **1** (ii) Hence find the equation of PM, the median through P. **2** (b) Find the equation of the line, *L*, passing through M and perpendicular to PR. **3** (c) Show that line *L* passes through the midpoint of PR. **3**

17	7	1	A (−3, 5), B (7, 9) and C (2, 11) are the vertices of a triangle. Find the equation of the median through C. **3**
17	11	1	A and B are the points (−7, 2) and (5, a). AB is parallel to the line with equation $3y - 2x = 4$. Determine the value of a. **3**
17	1	2	Triangle ABC is shown in the diagram below. The coordinates of B are (3,0) and the coordinates of C are (9,−2). The broken line is the perpendicular bisector of BC.  (a) Find the equation of the perpendicular bisector of BC. **4** (b) The line AB makes an angle of 45° with the positive direction of the x-axis. Find the equation of AB. **2** (c) Find the coordinates of the point of intersection of AB and the perpendicular bisector of BC. **2**
18	1	1	PQR is a triangle with vertices P (−2, 4), Q (4, 0) and R (3, 6).  Find the equation of the median through R. **3**

18	8	1	A line has equation $y-\sqrt{3}x+5=0$. Determine the angle this line makes with the positive direction of the x-axis. **2**
18	5	2	PQR is a triangle with P(3,4) and Q(9,–2).  (a) Find the equation of L_1, the perpendicular bisector of PQ. **3** The equation of L_2, the perpendicular bisector of PR is $3y+x=25$.  (b) Calculate the coordinates of C, the point of intersection of L_1 and L_2. **2** C is the centre of the circle which passes through the vertices of triangle PQR.  (c) Determine the equation of this circle. **2**
19	7	1	The line, L, makes an angle of 30° with the positive direction of the x-axis. Find the equation of the line perpendicular to L, passing through (0,–4). **4**

19	1	2	Triangle ABC has vertices A(−5,−12), B(11,−8) and C(−3,6).  (a) Find the equation of the median BD. **3** (b) Find the equation of the altitude AE. **3** (c) Find the coordinates of the point of intersection of BD and AE. **2**
22	1	1	Determine the equation of the line perpendicular to $5x+2y=7$, passing through $(-1,6)$. **3**
22	5	1	A line makes an angle of $\frac{\pi}{3}$ radians with the y-axis, and passes through the point $(-2,0)$ as shown below.  Determine the equation of the line. **3**

22	1	2	Triangle ABC has vertices A(−1, −1), B(2, −4) and C(7, 3).  (a) Find the equation of the altitude through C. **3** (b) Find the equation of the median through B. **3** (c) Determine the coordinates of the point of intersection of the altitude through C and the median through B. **2**