

- ⑤ The points A, B, C, D have coordinates $(-7, 4), (3, -1), (6, 1), (k, -15)$ respectively.

- (a) Find the gradient of AB . [2]
 (b) Find the equation of AB and simplify your answer. [3]
 (c) Find the length of AB . [2]
 (d) The point E is the mid-point of AB . Find the coordinates of E . [2]
 (e) Given that CD is perpendicular to AB , find the value of the constant k . [4]

June 08

- ⑥ The points A, B, C have coordinates $(2, -1), (-7, 1), (5, 4)$, respectively. The line through A perpendicular to the line BC intersects BC at the point D .

- (a) Show that the equation of BC is

$$x - 4y + 11 = 0,$$

and find the equation of AD . [7]

- (b) Show that the coordinates of D are $(1, 3)$. [2]
 (c) Find the length of CD . [2]
 (d) The line AD is extended to E so that D is the mid-point of AE . Find the coordinates of E . [2]

Jan 09

- ⑦ The points A, B, C are such that A, B have coordinates $(-1, 5), (7, 11)$, respectively and C is the mid-point of AB . The line L is the perpendicular bisector of AB .

- (a) Find the gradient of AB . [2]
 (b) Find the coordinates of C . [2]
 (c) Show that the equation of L is

$$4x + 3y - 36 = 0.$$

- (d) The line L intersects the x -axis at the point D .

- (i) Find the coordinates of D .
 (ii) Find the length of CD .
 (iii) Find the value of $\tan \hat{CAD}$.

[6]

June 09

- ⑧ The points A, B, C have coordinates $(-11, 10), (-5, 12), (3, 8)$ respectively. The line L_1 passes through the point A and is parallel to BC . The line L_2 passes through the point C and is perpendicular to BC .

- (a) Find the gradient of BC . [2]
 (b) (i) Show that L_1 has equation

$$x + 2y - 9 = 0.$$

 (ii) Find the equation of L_2 . [6]
 (c) The lines L_1 and L_2 intersect at the point D .
 (i) Show that D has coordinates $(1, 4)$.
 (ii) Find the length of BD .
 (iii) Find the coordinates of the mid-point of BD .

[6]

Jan 10