



Note: A link to the associated YouTube tutorial can be found at [ALevelMathsRevision.com/bridging-the-gap/](https://www.youtube.com/watch?v=bridging-the-gap/)

Q1, (Jun 2014, Q2)

A is the point (1, 5) and B is the point (6, -1). M is the midpoint of AB. Determine whether the line with equation $y = 2x - 5$ passes through M. [3]

Q2, (Jun 2011, Q9)

A line L is parallel to the line $x + 2y = 6$ and passes through the point (10, 1). Find the area of the region bounded by the line L and the axes. [5]

Q3, (Jun 2016, Q10i)

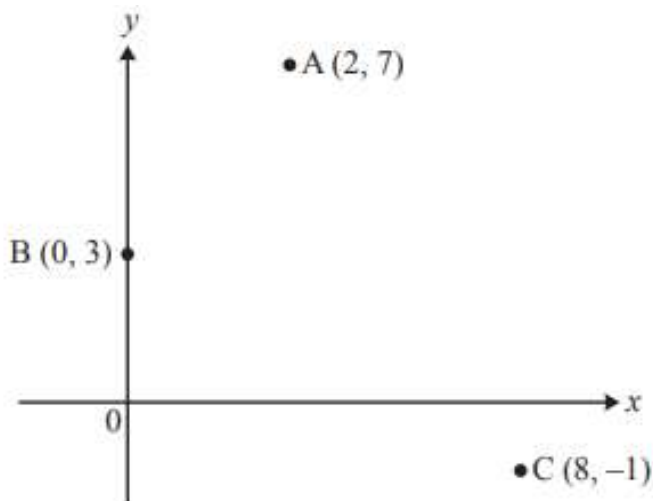
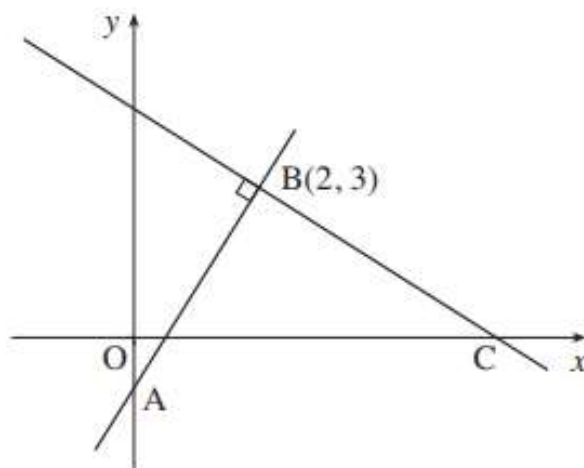


Fig. 10

Prove that angle ABC is 90° .

[3]

Q4, (Jan 2006, Q7)



Not to scale

Fig. 7

The line AB has equation $y = 4x - 5$ and passes through the point $B(2, 3)$, as shown in Fig. 7. The line BC is perpendicular to AB and cuts the x -axis at C. Find the equation of the line BC and the x -coordinate of C. [5]

Q5, (Jan 2007, Q12)

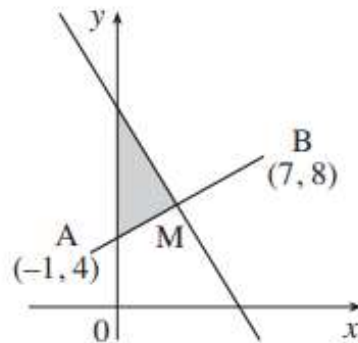
Use coordinate geometry to answer this question. Answers obtained from accurate drawing will receive no marks.

A and B are points with coordinates $(-1, 4)$ and $(7, 8)$ respectively.

- (i) Find the coordinates of the midpoint, M, of AB.

Show also that the equation of the perpendicular bisector of AB is $y + 2x = 12$. [6]

- (ii) Find the area of the triangle bounded by the perpendicular bisector, the y-axis and the line AM, as sketched in Fig. 12. [6]



Not to scale

Fig. 12

Q6, (Jan 2013, Q10)

- (i) Points A and B have coordinates $(-2, 1)$ and $(3, 4)$ respectively. Find the equation of the perpendicular bisector of AB and show that it may be written as $5x + 3y = 10$. [6]

- (ii) Points C and D have coordinates $(-5, 4)$ and $(3, 6)$ respectively. The line through C and D has equation $4y = x + 21$. The point E is the intersection of CD and the perpendicular bisector of AB. Find the coordinates of point E. [3]

Q7, (Jun 2012, Q10)

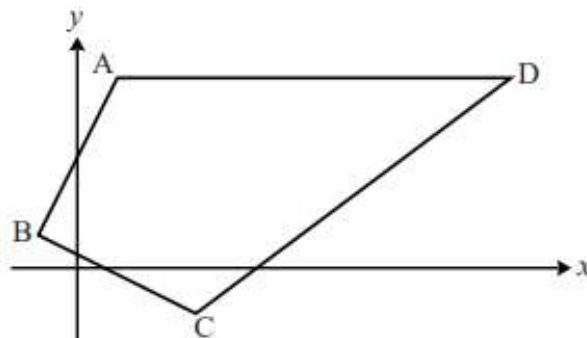


Fig. 10

Fig. 10 is a sketch of quadrilateral ABCD with vertices A $(1, 5)$, B $(-1, 1)$, C $(3, -1)$ and D $(11, 5)$.

- (i) Show that $AB = BC$. [3]
- (ii) Show that the diagonals AC and BD are perpendicular. [3]
- (iii) Find the midpoint of AC. Show that BD bisects AC but AC does not bisect BD. [5]