

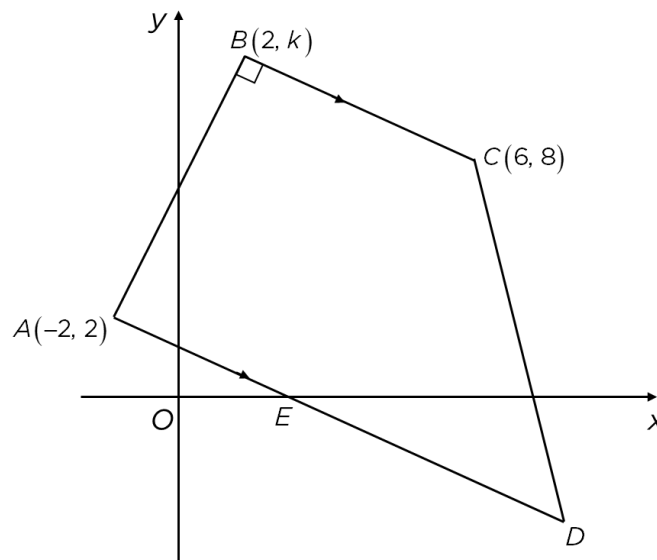
Topic: Coordinate Geometry

- 1 Given that $A(2, 5)$, $B(-3, -4)$, and $C(4, -9)$.
- (i) Find the midpoint of AB . [2]
- (ii) Determine the length of BC . [2]

- 2 The diagram shows a trapezium $ABCD$ in which AD is parallel to BC and AB is perpendicular to BC .

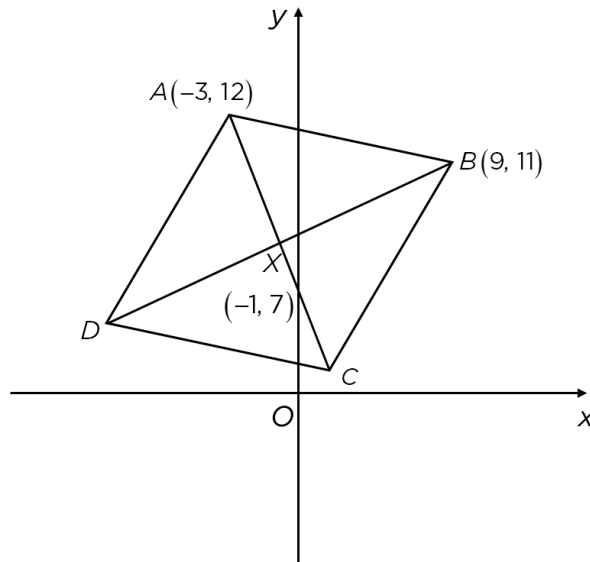
The coordinates of A , B and C are $(-2, 2)$, $(2, k)$ and $(6, 8)$ respectively.

AD cuts the x -axis at E and the gradient of CD is -3 .



- (i) Given that k is positive, find the value of k . [3]
- (ii) Find the coordinates of E . [2]
- (iii) Find the coordinates of D and hence, find the area of the trapezium $ABCD$. [4]

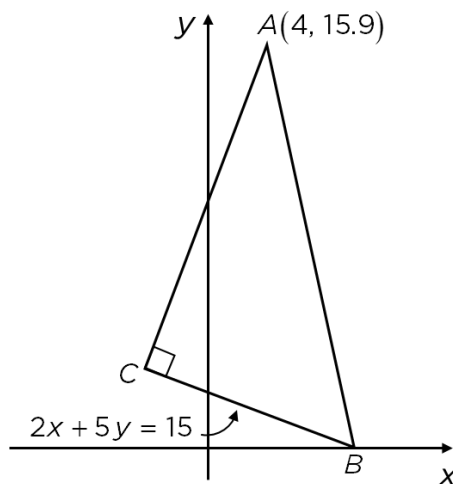
- 3 In the diagram below, $ABCD$ is a rhombus. A and B are $(-3, 12)$ and $(9, 11)$ respectively. The diagonals of the rhombus intersect at $X(-1, 7)$.



Find

- | | |
|---------------------------------|-----|
| (i) the equation of line AC , | [2] |
| (ii) coordinates of D , | [2] |
| (iii) area of rhombus $ABCD$. | [3] |

4



The diagram shows a triangle ABC in which the point A is $(4, 15.9)$, the point B lies on the x -axis and the angle ACB is 90° . The equation of BC is $2x + 5y = 15$.

- (i) Find the coordinates of C . [5]
- (ii) Given that $ABCD$ is a parallelogram, find the coordinates of D . [3]
- (iii) The point E is $(-5, -9)$. Find the area of triangle BCE . [2]

Answer Key

1(i)	$\left(-\frac{1}{2}, \frac{1}{2}\right)$
1(ii)	$\sqrt{74}$ units
2(i)	$k = 10$
2(ii)	$E(2, 0)$
2(iii)	$D(10, -4), 80 \text{ units}^2$
3(i)	$2y + 5x = 9$
3(ii)	$D(-11, 3)$
3(iii)	116 units^2
4(i)	$C(-1, 3.4)$
4(ii)	$D(-4.5, 19.3)$
4(iii)	59.5 units^2