Total Marks: 30

Topic: Coordinate Geometry

1 Given that $A(2, 5)$, $B(-3, -4)$, and $C(4, -9)$.

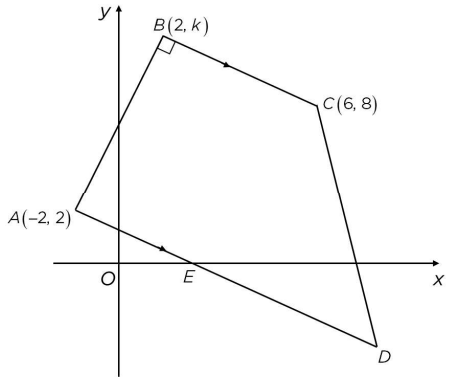
(i) Find the midpoint of AB. [2]

(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.



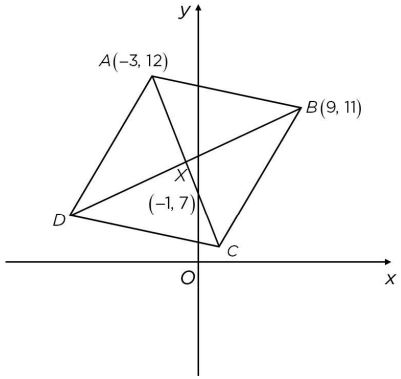
(i) Given that k is positive, find the value of k. [3]

(ii) Find the coordinates of E. [2]

(iii) Find the coordinates of D and hence, find the area of the trapezium $ABCD$. [4]

MATRIX MATH S3A TOPICAL INTENSIVE REVISION WEEK 7

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 $(-1, 7)$.



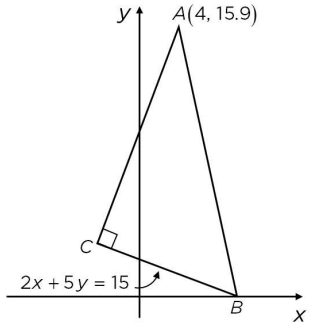
Find

(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)	$\left(-\frac{1}{2}, \frac{9}{2}\right)$
1(ii)	$\sqrt{74}$ units
2(i)	$k = 10$
2(ii)	$E(2, 0)$
2(iii)	$D(10, -4)$, 80 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