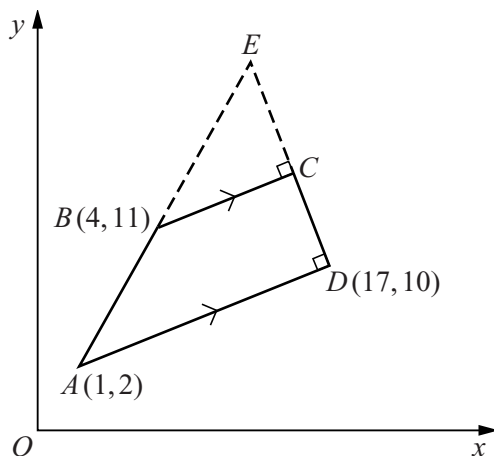


Solutions to this question by accurate drawing will not be accepted.



The diagram, which is not drawn to scale, shows a trapezium $ABCD$ in which BC is parallel to AD . The side AD is perpendicular to DC . Point A is $(1, 2)$, B is $(4, 11)$ and D is $(17, 10)$. Find

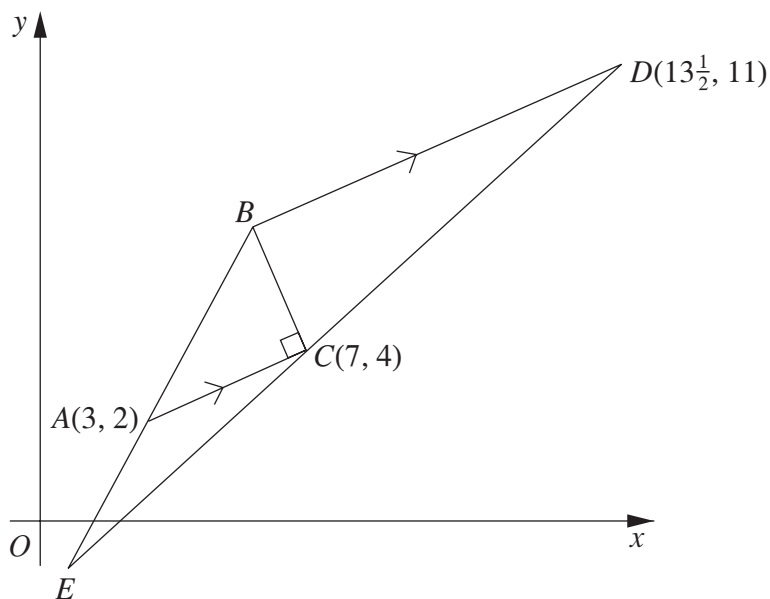
(i) the coordinates of C .

The lines AB and DC are extended to meet at E . Find

(ii) the coordinates of E ,

(iii) the ratio of the area of triangle EBC to the area of trapezium $ABCD$.

[11]



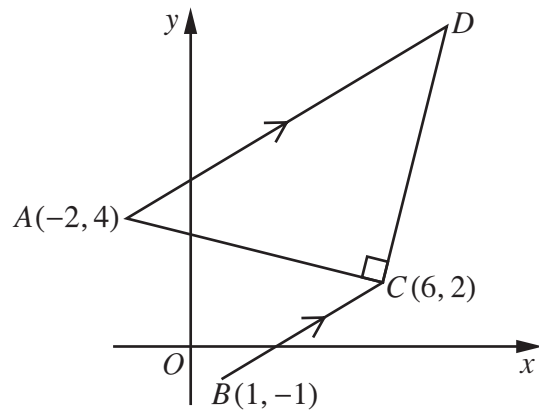
The diagram shows a triangle ABC in which A is the point $(3, 2)$, C is the point $(7, 4)$ and angle $ACB = 90^\circ$. The line BD is parallel to AC and D is the point $(13\frac{1}{2}, 11)$. The lines BA and DC are extended to meet at E . Find

(i) the coordinates of B ,

[7]

(ii) the ratio of the area of the quadrilateral $ABDC$ to the area of the triangle EBD .

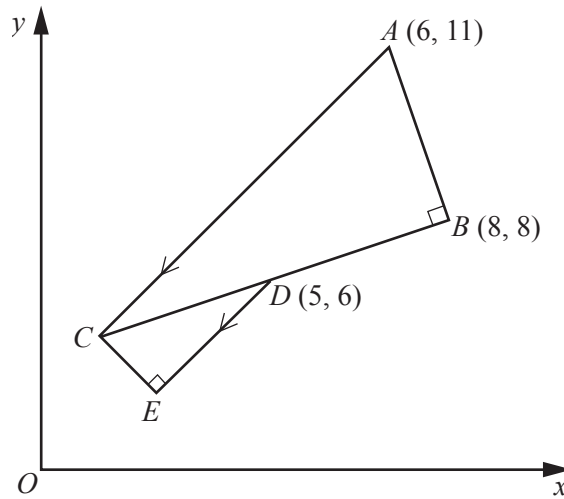
[3]



In the diagram the points A , B and C have coordinates $(-2, 4)$, $(1, -1)$ and $(6, 2)$ respectively. The line AD is parallel to BC and angle $ACD = 90^\circ$.

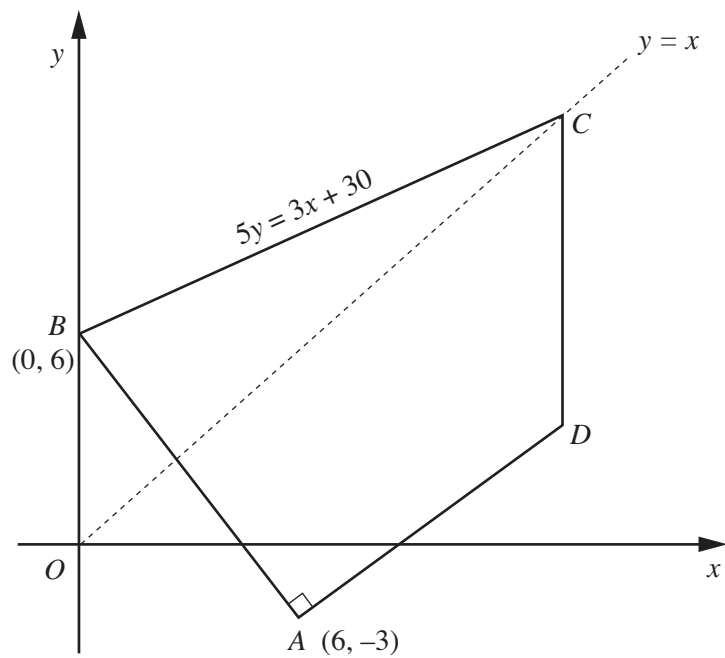
- (i) Find the equations of AD and CD . [6]
- (ii) Find the coordinates of D . [2]
- (iii) Show that triangle ACD is isosceles. [2]

Solutions to this question by accurate drawing will not be accepted.



The diagram, which is not drawn to scale, shows a right-angled triangle ABC , where A is the point $(6, 11)$ and B is the point $(8, 8)$.

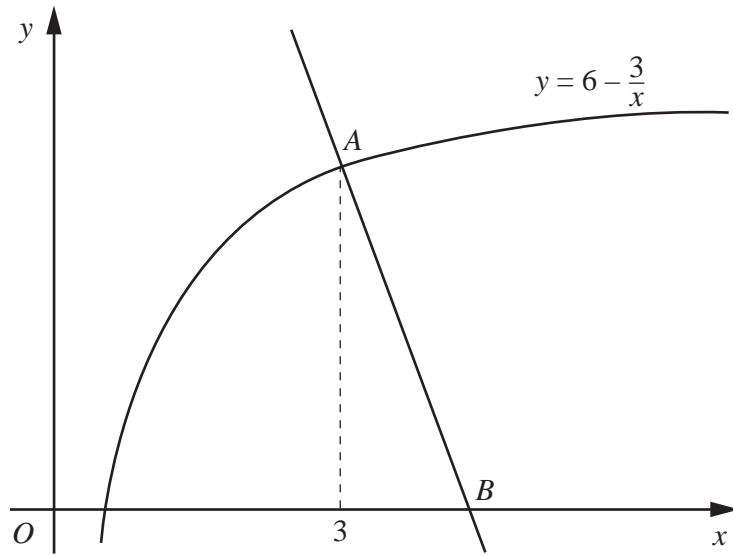
The point $D(5, 6)$ is the mid-point of BC . The line DE is parallel to AC and angle DEC is a right-angle. Find the area of the entire figure $ABDECA$. [11]



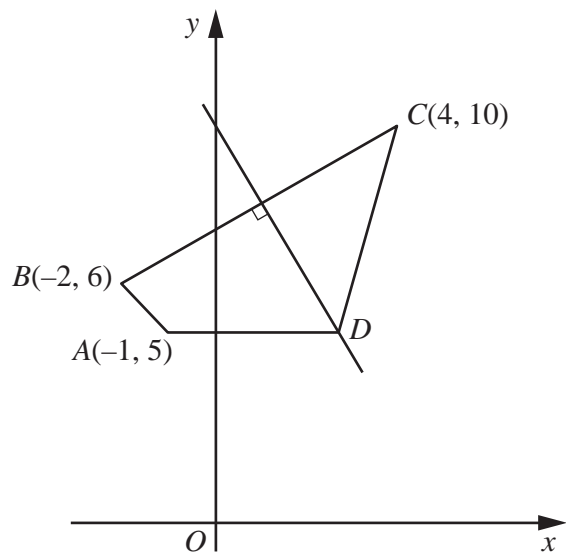
The diagram, which is not drawn to scale, shows a quadrilateral $ABCD$ in which A is $(6, -3)$, B is $(0, 6)$ and angle BAD is 90° . The equation of the line BC is $5y = 3x + 30$ and C lies on the line $y = x$. The line CD is parallel to the y -axis.

- (i) Find the coordinates of C and of D . [6]
- (ii) Show that triangle BAD is isosceles and find its area. [4]

5



The diagram shows part of the curve $y = 6 - \frac{3}{x}$ which passes through the point A where $x = 3$. The normal to the curve at the point A meets the x -axis at the point B . Find the coordinates of the point B . [5]



In the diagram the points $A(-1, 5)$, $B(-2, 6)$, $C(4, 10)$ and D are the vertices of a quadrilateral in which AD is parallel to the x -axis. The perpendicular bisector of BC passes through D . Find the area of the quadrilateral $ABCD$. [8]

where n is a positive integer and $\binom{n}{r} = \frac{n!}{(n-r)!r!}$.