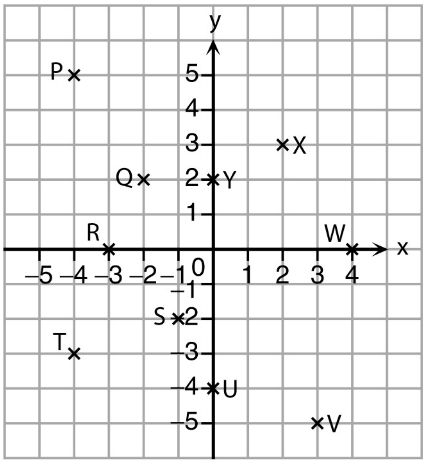
Set 1 Q

Consider the rectangular coordinate plane below.



(a) Write down the points which lie in the

(i) 2nd quadrant,

(ii) 3rd quadrant.

(b) Write down the x-coordinates of Q and U.

(c) Write down the y-coordinates of T and Y.

(d) Write down the coordinates of W, P, S and V.

(a) Plot four points $A(2, 3)$, $B(-4, 0)$, $C(-4, -3)$ and $D(3, 4)$ on a rectangular coordinate plane.

(b) Join A and B. Write down the coordinates of the point of intersection of AB and the y-axis.

(c) Join C and D. Write down the coordinates of the point of intersection of CD and the x-axis.

Find the distance between $A(-3, -2)$ and $B(-8, -2)$.

Find the distance between $P(2, -5)$ and $Q(2, 4)$.

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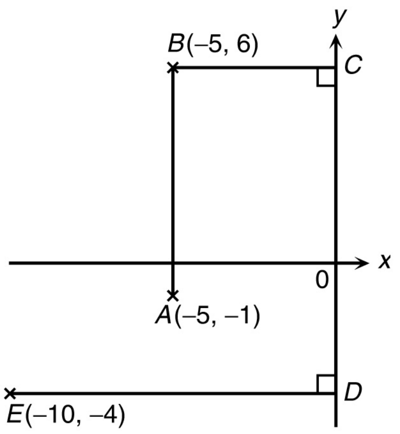
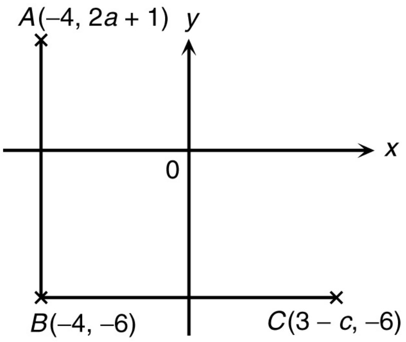
The figure shows five points $A(-5, -1)$, $B(-5, 6)$, C, D and $E(-10, -4)$. C and D are points on the y-axis such that BC and DE are two horizontal lines. If a man walks from A via B, C and D to E, find the total distance he travels.

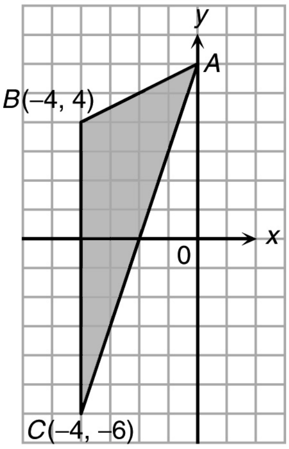


The figure shows three points $A(-4, 2a + 1)$, $B(-4, -6)$ and $C(3 - c, -6)$. Given that $AB = 9$ units and $BC = 8$ units, find a and c.

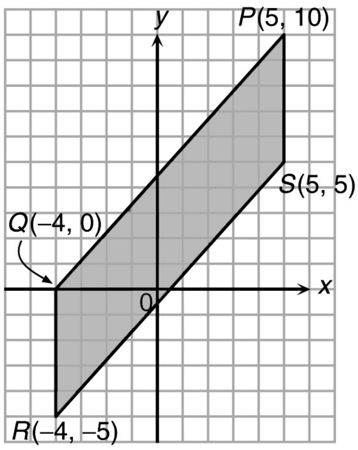


Email: mathspercyyeung@gmail.com

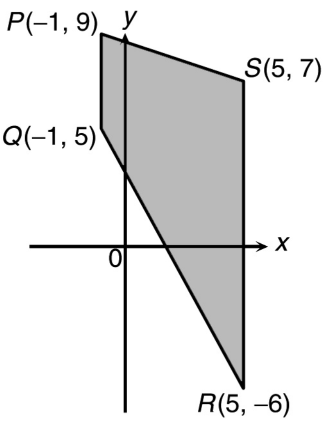
In the figure, A, $B(-4, 4)$ and $C(-4, -6)$ are the vertices of $\triangle ABC$, where A lies on the y-axis. Find the area of $\triangle ABC$.



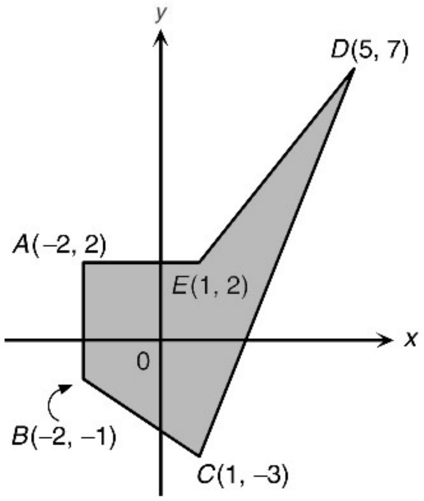
Find the area of parallelogram $PQRS$ in the figure.



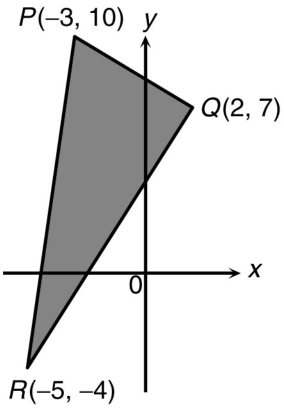
Find the area of trapezium $PQRS$ in the figure.



Find the area of pentagon $ABCDE$ in the figure.



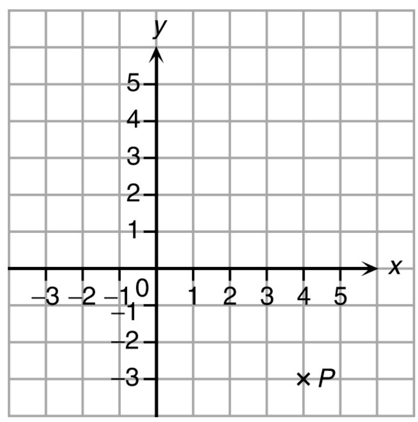
Find the area of $\triangle PQR$ in the figure.



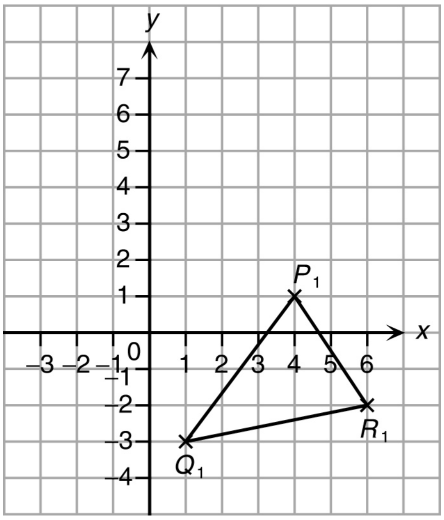
The figure shows a point $P(4, –3)$. Then P is translated upwards by 8 units to P_1.

(a) Find the coordinates of P_1.

(b) If P_1 is translated to the left by 7 units and then translated downwards by 3 units to P_2, find the coordinates of P_2.



P, Q and R are translated to the right by 4 units and then translated downwards by 6 units to $P_1(4, 1)$, $Q_1(1, -3)$ and $R_1(6, -2)$. Find the coordinates of the vertices of
$\triangle PQR$ and hence draw $\triangle PQR$ in the figure.



$P(-5, 2)$ is a point on a rectangular coordinate plane. If P is reflected about the y-axis to Q and Q is reflected about the x-axis to R, write down the coordinates of Q and R.

If $P(4, -6)$ is rotated through 90° anti-clockwise about O to Q, find the coordinates of Q.

Consider a point $P(-2, -5)$ on a rectangular coordinate plane.

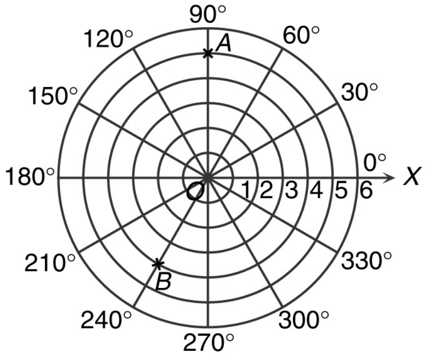
(a) If P is rotated through 180° anti-clockwise about O to Q, find the coordinates of Q.

(b) If a point R is rotated through 270° anti-clockwise about O to P, find the coordinates of R.

(a) Write down the polar coordinates of A and B on the polar coordinate plane.

(b) Plot $P(3, 150°)$ and $Q(2, 270°)$ on the polar coordinate plane.

(c) Find $\angle POB$ and AQ.



(a) Plot four points $A(-4, 1)$, $B(-1, -2)$, $C(6, 1)$ and $D(3, 4)$ on a rectangular coordinate plane.

(b) Join AB, BC, CD and DA.

(c) Find the coordinates of the point of intersection of the diagonals of $ABCD$.

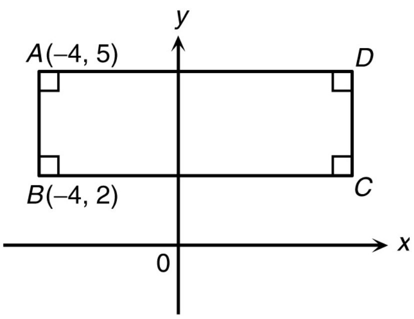
(d) Which type of quadrilateral is $ABCD$?

In the figure, $ABCD$ is a rectangle with $AD = 3AB$.

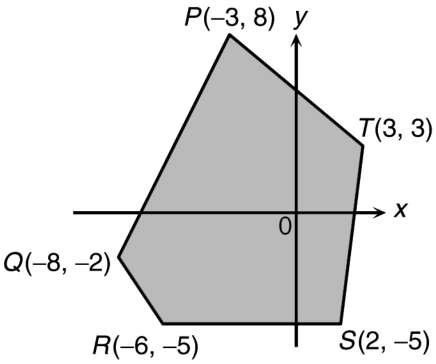
(a) Find the length of AB.

(b) Hence, find the length of AD.

(c) Find the coordinates of C and D.



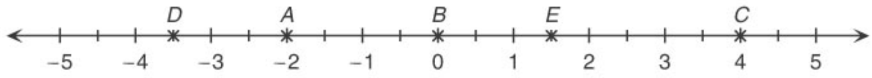
Find the area of pentagon $PQRST$ in the figure.



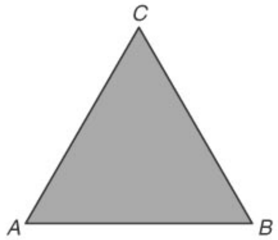
A point $P(a, b)$ is translated to the left by 5 units, and then reflected about the x-axis, and then rotated through 90° clockwise about O to $Q(–2, 8)$. Find the values of a and b.

Set 2 Q

Find the directed numbers represented by the letters on the number line below.

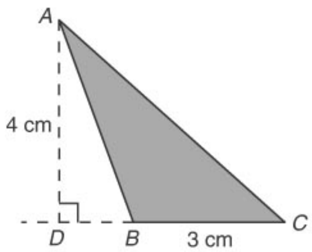


Rotate equilateral triangle *ABC* through 180° anti-clockwise about *A*.

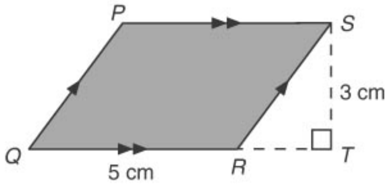


Draw a vertical number line from –4 to 4 and label $-\frac{1}{2}$, +1.5, 0, 3, –2.5 on it.

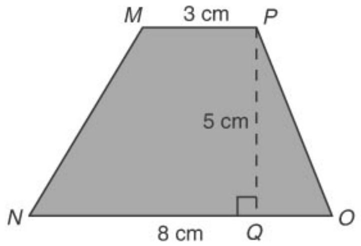
Find the area of $\triangle ABC$.



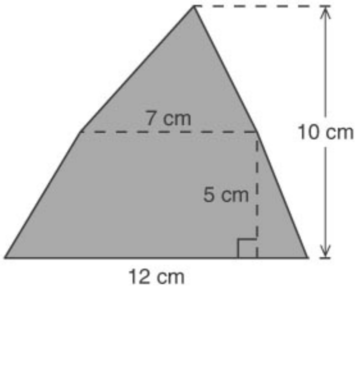
Find the area of parallelogram *PQRS*.



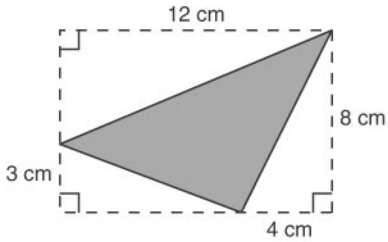
Find the area of trapezium *MNOP*.



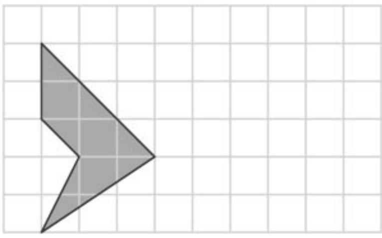
Find the area of the figure.



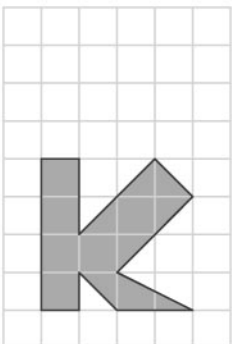
Find the area of the figure.



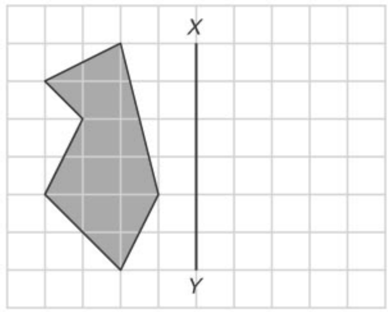
Translate the figure to the right by 3 units.



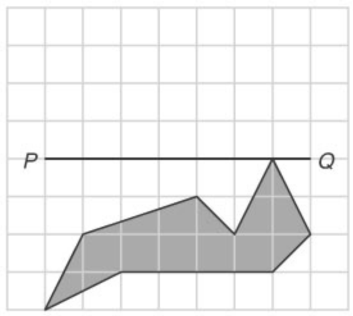
Translate the figure upwards by 2 units.



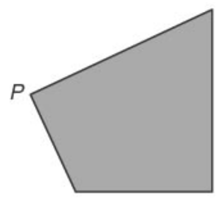
Reflect the figure about *XY*.



Reflect the figure about *PQ*.

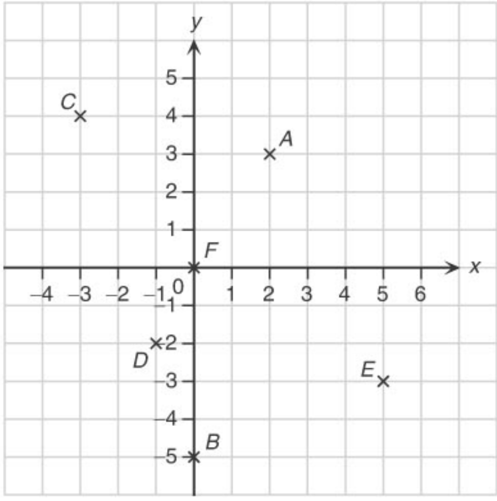


Rotate the following figure through 90° anti-clockwise about *P*.



Set 3 Q

In the figure, write down the coordinates of points *A* to *F*.



Which quadrants do the following points lie in?

(a) $P(6, 7)$

(b) $Q(-2, -2)$

(c) $R(2.5, -3.5)$

(d) $S\left(-\frac{3}{8}, 1\frac{7}{10}\right)$

Plot four points $A(-3, 4)$, $B(0, 2)$, $C(2, 0)$ and $D(5, -1)$ on a rectangular coordinate plane. Write down the x-coordinates of these points.

Plot four points $E(1, 1)$, $F(-3, 0)$, $G(0, -3)$ and $H(-2, -2)$ on a rectangular coordinate plane. Write down the y-coordinates of these points.

If $M(a, b)$ and $N(c, d)$ lie on the x-axis and the y-axis respectively, find b and c.

(a) Plot the following points on a rectangular coordinate plane: $A(-2, -2)$, $B(-2, 2)$, $C(1, 0)$, $D(4, 2)$ and $E(4, -2)$

(b) Join AB, BC, CD and DE. Which letter is formed?

(a) Plot $P(-1, 1)$, $Q(3, -4)$ and $R(3, 1)$ on a rectangular coordinate plane.

(b) What kind of triangle is $\triangle PQR$?

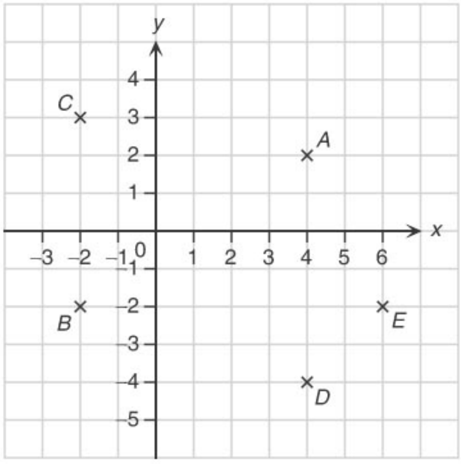
(a) Plot the following points on a rectangular coordinate plane: $A(-1, -6)$, $B(5, -6)$, $C(5, -5)$, $D(0, -5)$, $E(0, -2)$, $F(5, -2)$, $G(5, -1)$ and $H(-1, -1)$

(b) What kind of polygon is $ABCDEFGH$?

(a) Plot $A(-2, -4)$ and $B(3, 1)$ on a rectangular coordinate plane.

(b) Draw a line L passing through A and B. If L intersects the x-axis at P and the y-axis at Q, find the coordinates of P and Q.

The figure shows points A to E on a rectangular coordinate plane.

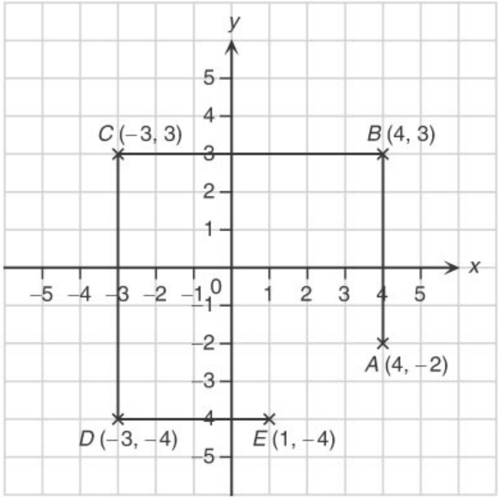


(a) Join AB, AD, BC, BE and DE.

(b) Which line in (a) is parallel to the x-axis?

(c) Which line(s) in (a) is/are parallel to the y-axis?

Find the lengths of line segments AB, BC, CD and DE in the figure.



Find the distance between $A(2, 7)$ and $B(2, 0)$.

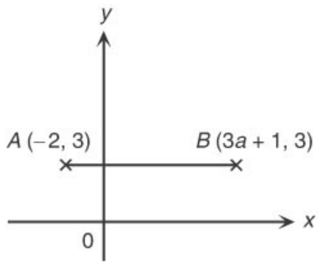
Find the distance between $C(6, -3)$ and $D(-4, -3)$.

Find the distance between $E(-1.2, 4.5)$ and $F(-1.2, -3.4)$.

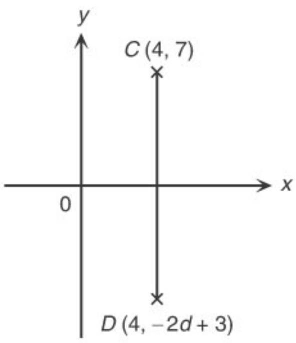
Find the distance between $G\left(5\frac{1}{2}, -\frac{2}{3}\right)$ and $H\left(5\frac{1}{2}, -3\frac{1}{6}\right)$.

Given three points $A(1, 1)$, $B(3, 1)$ and $C(3, -1)$, find AB and BC.

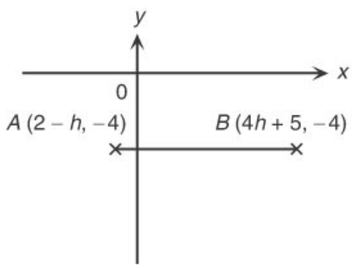
In the figure, $A(-2, 3)$ is on the left of $B(3a + 1, 3)$. If $AB = 9$ units, find a.



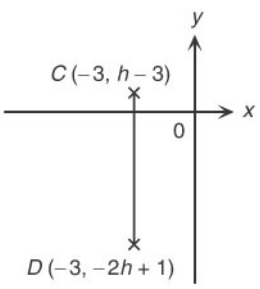
In the figure, $C(4, 7)$ is above $D(4, -2d + 3)$. If $CD = 14$ units, find d.



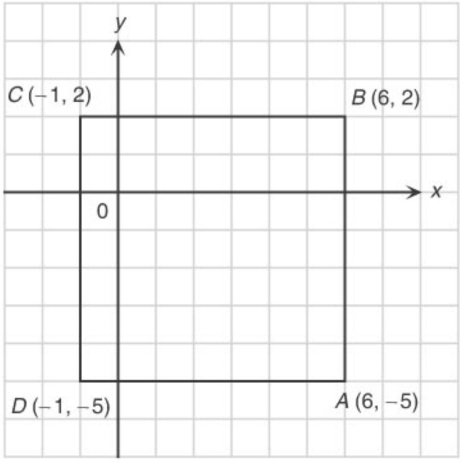
In the figure, $A(2 - h, -4)$ is on the left of $B(4h + 5, -4)$. If $AB = 7\frac{1}{4}$ units, find h.



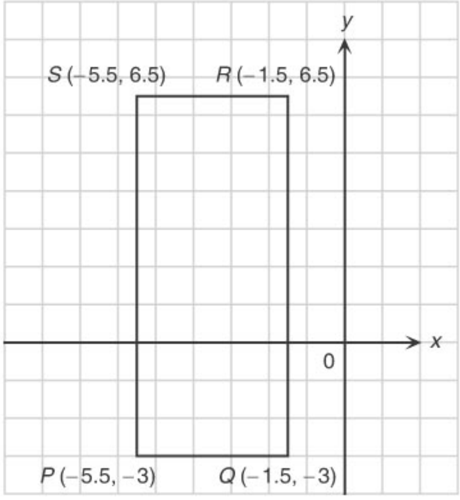
In the figure, $C(-3, h - 3)$ is above $D(-3, -2h + 1)$. If $CD = 8$ units, find h.



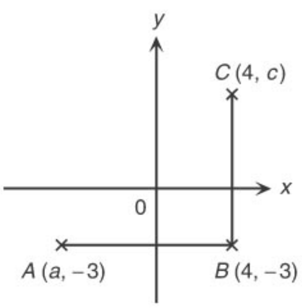
There are four points $A(6, -5)$, $B(6, 2)$, $C(-1, 2)$ and $D(-1, -5)$ in the figure. Find the perimeter of quadrilateral $ABCD$.



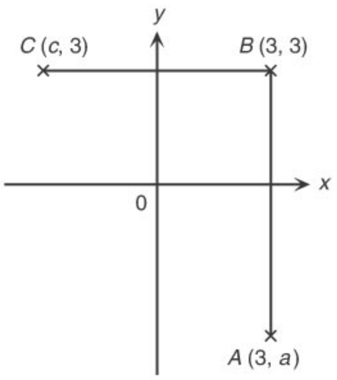
There are four points $P(-5.5, -3)$, $Q(-1.5, -3)$, $R(-1.5, 6.5)$ and $S(-5.5, 6.5)$ in the figure. Find the perimeter of quadrilateral $PQRS$.



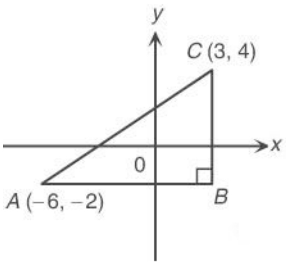
There are three points $A(a, -3)$, $B(4, -3)$ and $C(4, c)$ in the figure. If $AB = 9$ units and $BC = 8$ units, find a and c.



There are three points $A(3, a)$, $B(3, 3)$ and $C(c, 3)$ in the figure. If $AB = 7$ units and $BC = 6$ units, find a and c.



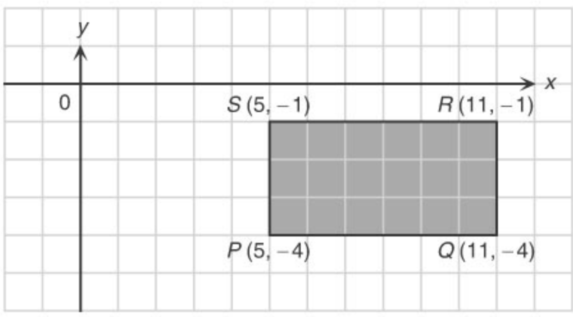
In the figure, AB is parallel to the x-axis and BC is parallel to the y-axis.



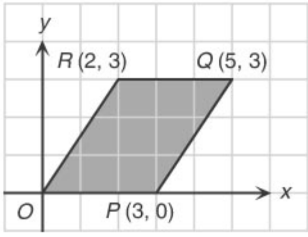
(a) Find the coordinates of B.

(b) Find AB and BC.

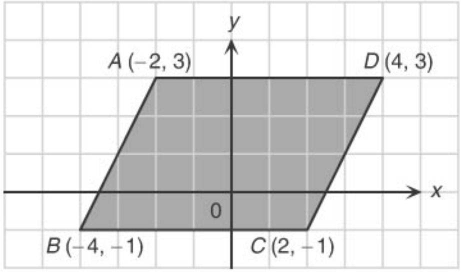
Find the area of rectangle $PQRS$ in the figure.



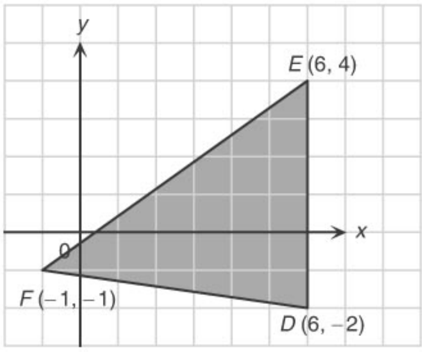
Find the area of parallelogram *OPQR* in the figure.



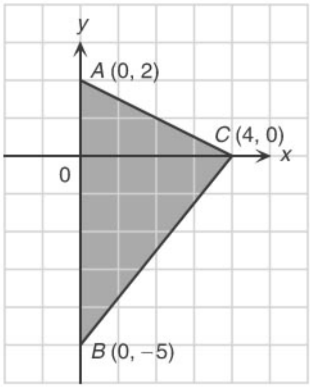
Find the area of parallelogram *ABCD* in the figure.



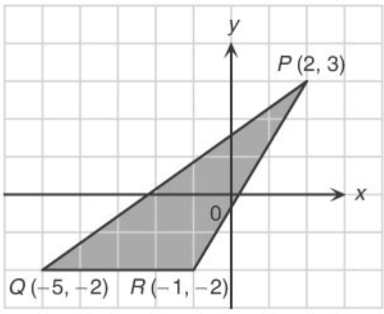
Find the area of $\triangle DEF$ in the figure.



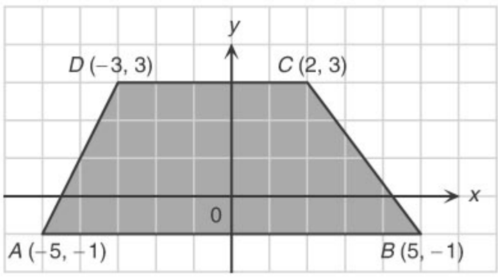
Find the area of $\triangle ABC$ in the figure.



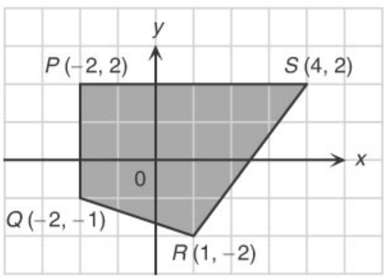
Find the area of $\triangle PQR$ in the figure.



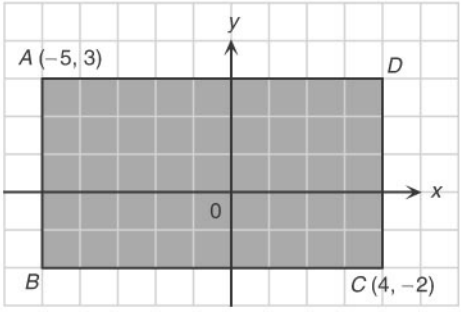
Find the area of trapezium $ABCD$ in the figure.



Find the area of quadrilateral $PQRS$ in the figure.



In the figure, $A(-5, 3)$ and $C(4, -2)$ are two vertices of rectangle $ABCD$. Given that AD is parallel to the x-axis, find



(a) the coordinates of B and D,

(b) the area of rectangle $ABCD$.

(a) Draw a trapezium $ABCD$ with vertices $A(4, 2)$, $B(0, 2)$, $C(-2, -2)$ and $D(5, -2)$ on a rectangle coordinate plane.

(b) Find the area of trapezium $ABCD$.

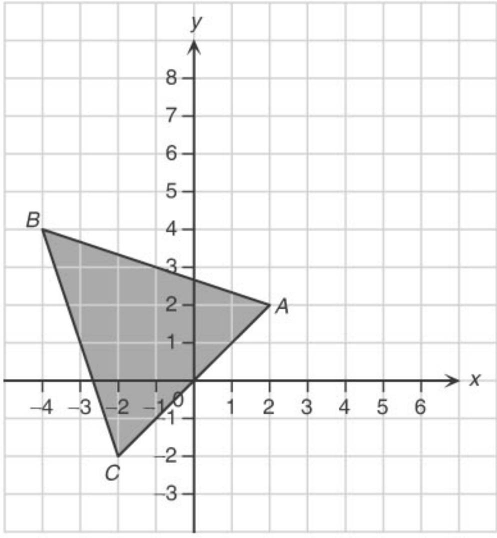
Plot the point $A(-4, -5)$ on a rectangular coordinate plane. Then plot A_1, A_2 and A_3 according to the instructions below and write down their coordinates.

(a) A is translated to the right by 6 units to A_1.

(b) A is translated upwards by 10 units to A_2.

(c) A is translated to the right by 4 units and then translated upwards by 7 units to A_3.

The figure shows $\triangle ABC$. If $\triangle ABC$ is translated upwards by 4 units to $\triangle A_1B_1C_1$,



(a) draw $\triangle A_1B_1C_1$ in the figure,

(b) write down the coordinates of the vertices of $\triangle A_1B_1C_1$.

(a) Plot $A(-2, 3)$, $B(-4, -1)$ and $C(2, -1)$ on a rectangular coordinate plane.

(b) If A, B and C are translated downwards by 2 units to A_1, B_1 and C_1 respectively, plot A_1, B_1 and C_1 in the figure and write down their coordinates.

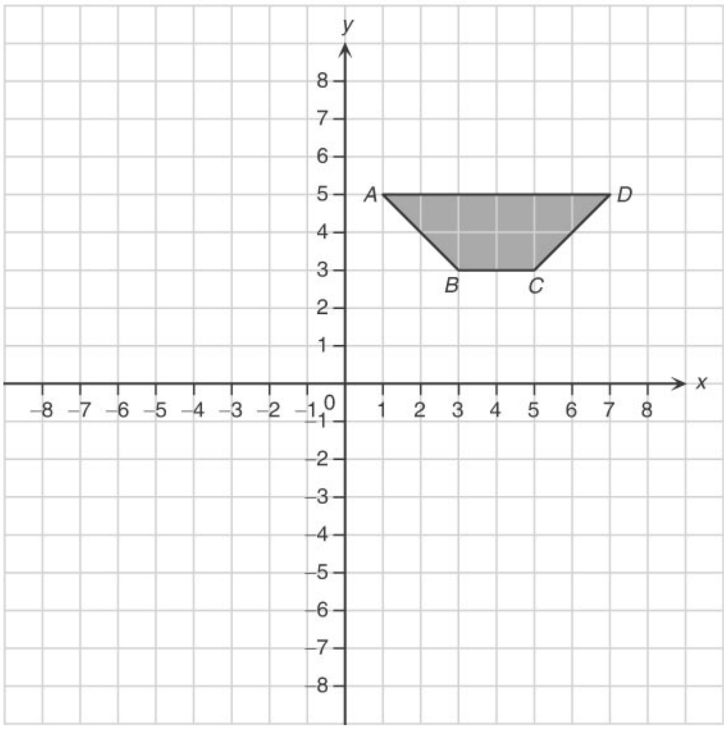
(c) If A, B and C are translated to the left by 3 units to A_2, B_2 and C_2 respectively, plot A_2, B_2 and C_2 in the figure and write down their coordinates.

(a) Plot $X(2, 4)$ and $Y(-4, -3)$ on a rectangular coordinate plane.

(b) If X and Y are reflected about the x-axis to X_1 and Y_1 respectively, plot X_1 and Y_1 in the figure and write down their coordinates.

(c) If X and Y are reflected about the y-axis to X_2 and Y_2 respectively, plot X_2 and Y_2 in the figure and write down their coordinates.

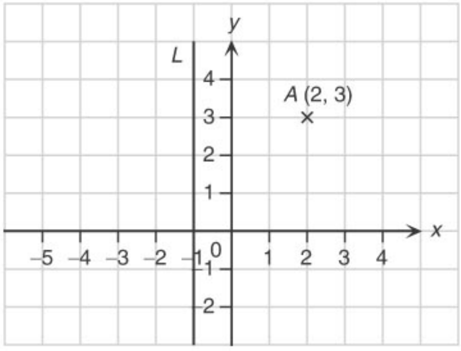
The figure shows a trapezium $ABCD$.



(a) If trapezium $ABCD$ is reflected about the x-axis to trapezium $A_1B_1C_1D_1$, draw trapezium $A_1B_1C_1D_1$ in the figure and write down the coordinates of the vertices of trapezium $A_1B_1C_1D_1$.

(b) If trapezium $ABCD$ is reflected about the y-axis to trapezium $A_2B_2C_2D_2$, draw trapezium $A_2B_2C_2D_2$ in the figure and write down the coordinates of the vertices of trapezium $A_2B_2C_2D_2$.

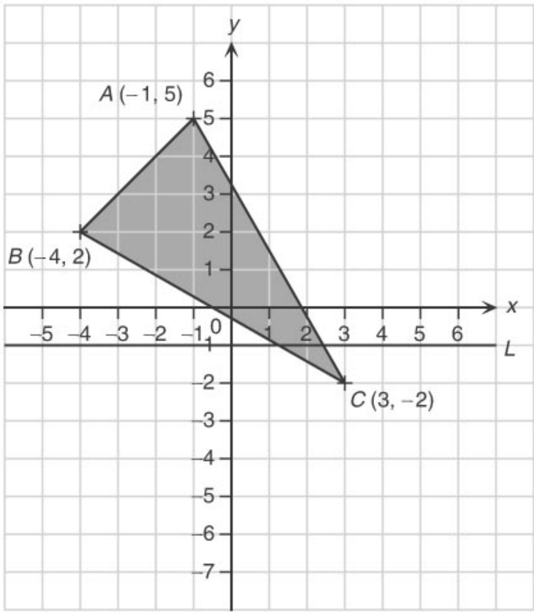
The figure shows a point $A(2, 3)$ on a rectangular coordinate plane. L is a line parallel to the y-axis and it passes through $(-1, 0)$.



(a) If A is reflected about L to A', plot A' in the figure.

(b) Write down the coordinates of A' obtained **(a)**.

The figure shows $\triangle ABC$. L is a line parallel to the x-axis and it passes through $(0, -1)$. If $\triangle ABC$ is reflected about L to $\triangle A_1B_1C_1$,



(a) draw $\triangle A_1B_1C_1$ in the figure,

(b) write down the coordinates of the vertices of $\triangle A_1B_1C_1$.

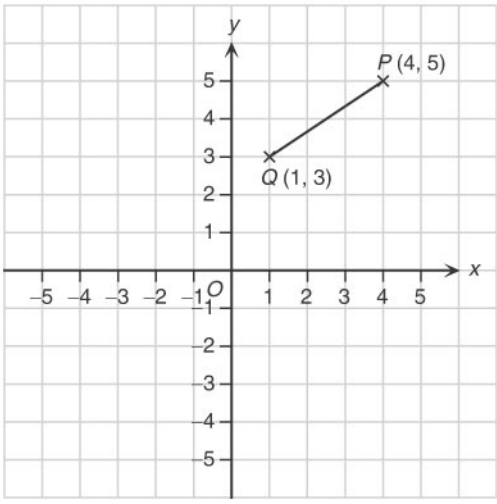
Plot $A(2, 4)$ on a rectangular coordinate plane. Then plot A_1, A_2 and A_3 according to the instructions below, and write down their coordinates.

(a) A is rotated through 90° anti-clockwise about the origin to A_1.

(b) A is rotated through 180° anti-clockwise about the origin to A_2.

(c) A is rotated through 270° anti-clockwise about the origin to A_3.

The figure shows a line segment PQ.

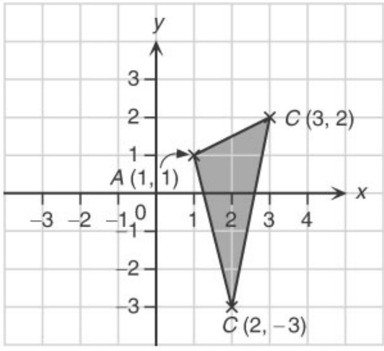


(a) If PQ is rotated through 90° anti-clockwise about O to P_1Q_1, draw the line segment P_1Q_1 in the figure and write down the coordinates of P_1 and Q_1.

(b) If PQ is rotated through 180° anti-clockwise about O to P_2Q_2, draw the line segment P_2Q_2 in the figure and write down the coordinates of P_2 and Q_2.

(c) If PQ is rotated through 270° anti-clockwise about O to P_3Q_3, draw the line segment P_3Q_3 in the figure and write down the coordinates of P_3 and Q_3.

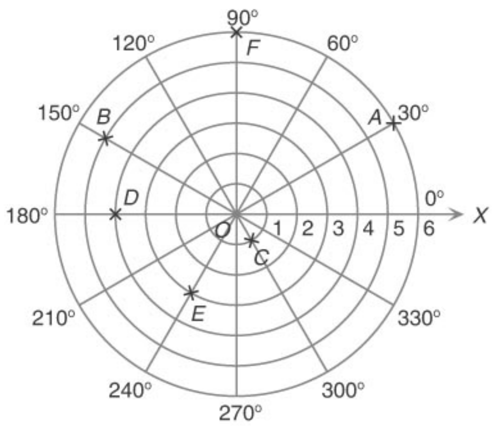
The figure shows $\triangle ABC$. If $\triangle ABC$ is rotated through 90° anti-clockwise about O to $\triangle A'B'C'$,



(a) draw $\triangle A'B'C'$ in the figure,

(b) write down the coordinates of the vertices of $\triangle A'B'C'$.

Write down the polar coordinates of points A to F on the polar coordinate plane below.



(a) Plot $A(4, 180°)$, $B(4, 240°)$, $C(4, 0°)$ and $D(4, 60°)$ on a polar coordinate plane.

(b) Join AB, BC, CD and DA. What kind of quadrilateral is $ABCD$?

(a) Plot $P(1, 90°)$, $Q(2, 210°)$ and $R(5, 210°)$ on a polar coordinate plane.

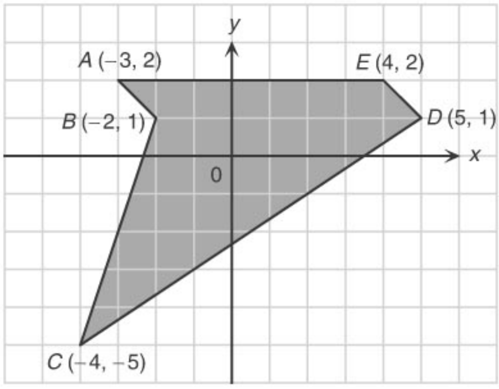
(b) **(i)** Find $\angle POQ$.

(ii) Find QR.

Set 4 Q

If a line L passes through $P(3, -5)$ and is parallel to the x-axis, find the coordinates of the point that L intersects with the y-axis.

Find the area of pentagon $ABCDE$ in the figure.



(a) Draw $\triangle PQR$ with vertices $P(-5, 0)$, $Q(1, -2)$ and $R(0, 2)$ on a rectangular coordinate plane.

(b) Find the area of $\triangle PQR$.

(a) Draw a parallelogram $ABCD$ with vertices $A(-2, 3)$, $B(-5, -1)$, $C(3, -1)$ and $D(6, 3)$ on a rectangular coordinate plane.

(b) Find the area of parallelogram $ABCD$.

(a) Draw a pentagon $ABCDE$ with vertices $A(-4, 2)$, $B(-2, 4)$, $C(3, 4)$, $D(5, 2)$ and $E(-1, -2)$ on a rectangular coordinate plane.

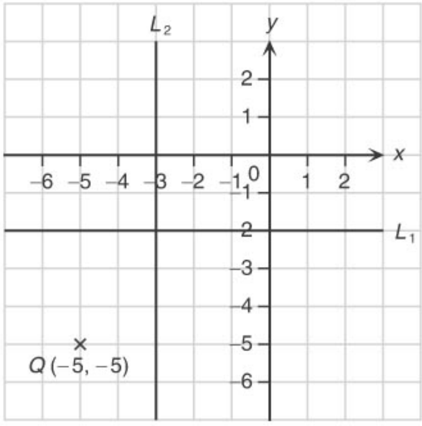
(b) Find the area of pentagon $ABCDE$.

ABCD is a parallelogram on a rectangular coordinate plane with vertices $A(3, -2)$, $B(1, 4)$ and $C(-4, 4)$.

(a) Find the coordinates of *D*.

(b) Find the area of parallelogram *ABCD*.

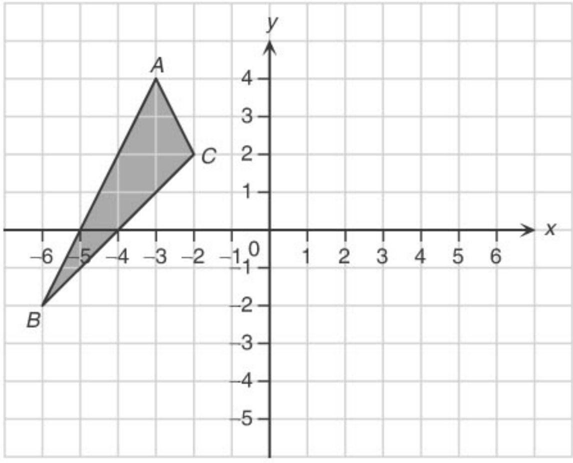
The figure shows a point $Q(-5, -5)$. L_1 is a line parallel to the *x*-axis and it passes through $(0, -2)$. L_2 is a line parallel to the *y*-axis and it passes through $(-3, 0)$.



(a) If Q is reflected about L_1 to Q_1, plot Q_1 in the figure and write down its coordinates.

(b) If Q is reflected about L_2 to Q_2, plot Q_2 in the figure and write down its coordinates.

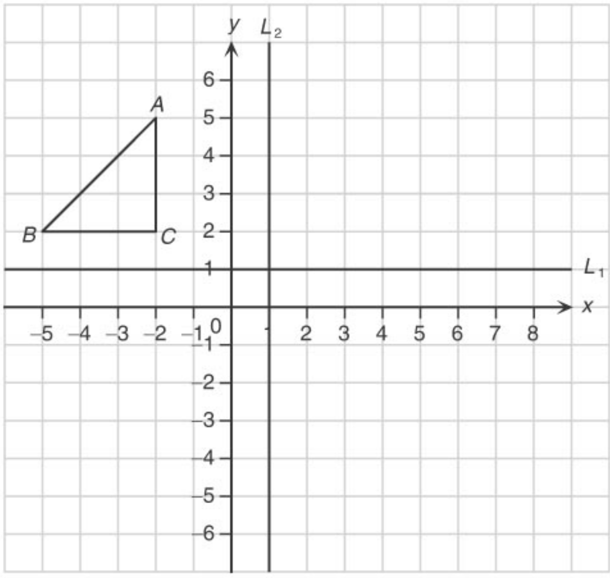
The figure shows $\triangle ABC$.



(a) If $\triangle ABC$ is translated downwards by 3 units to $\triangle A_1B_1C_1$, draw $\triangle A_1B_1C_1$ in the figure and write down the coordinates of the vertices of □$A_1B_1C_1$.

(b) If $\triangle A_1B_1C_1$ is reflected about the y-axis to $\triangle A_2B_2C_2$, draw $\triangle A_2B_2C_2$ in the figure and write down the coordinates of the vertices of $\triangle A_2B_2C_2$.

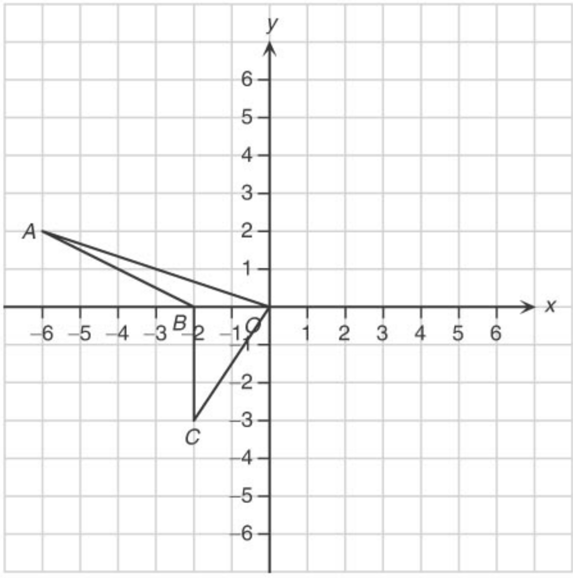
The figure shows $\triangle ABC$.



(a) If $\triangle ABC$ is reflected about L_1 to $\triangle A_1B_1C_1$, draw $\triangle A_1B_1C_1$ in the figure and write down the coordinates of the vertices of $\square A_1B_1C_1$.

(b) If $\triangle A_1B_1C_1$ is reflected about L_2 to $\triangle A_2B_2C_2$, draw $\triangle A_2B_2C_2$ in the figure and write down the coordinates of the vertices of $\square A_2B_2C_2$.

The figure shows a quadrilateral $OABC$.



(a) If $OABC$ is rotated through 90° anti-clockwise about O to $O_1A_1B_1C_1$, draw $O_1A_1B_1C_1$ in the figure and write down the coordinates of O_1, A_1, B_1 and C_1.

(b) If $OABC$ is rotated through 180° anti-clockwise about O to $O_2A_2B_2C_2$, draw $O_2A_2B_2C_2$ in the figure and write down the coordinates of O_2, A_2, B_2 and C_2.

(c) If $OABC$ is rotated through 270° anti-clockwise about O to $O_3A_3B_3C_3$, draw $O_3A_3B_3C_3$ in the figure and write down the coordinates of O_3, A_3, B_3 and C_3.

Given that $A(0, 5)$ is rotated through 90° anti-clockwise about the origin O and then translated upwards by 3 units to B. Find the area of $\triangle OAB$.

Given that $A(x + 2, 3)$ is the reflection of $B(-2, y - 1)$ about the x-axis,

(a) find x and y,

(b) write down the coordinates of A and B.

Given that $P(3, 2y + 1)$ is the reflection of $Q(-x + 2, 5)$ about the y-axis,

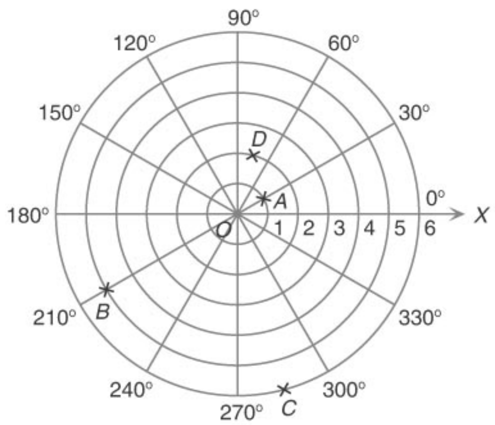
(a) find x and y,

(b) write down the coordinates of P and Q.

Given that $M(1, 3y + 1)$ is rotated through 180° anti-clockwise about the origin to $N(-x + 2, 2)$,

(a) find x and y,

(b) write down the coordinates of M and N.

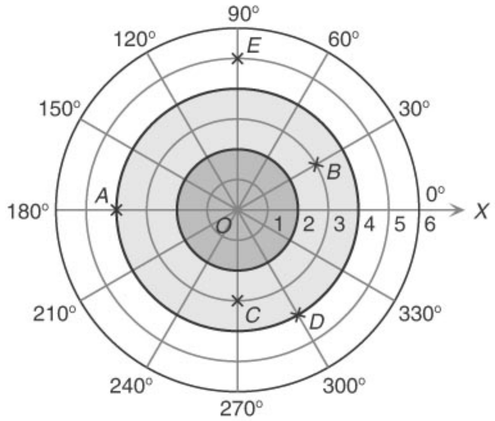


(a) Write down the polar coordinates of points A to D on the polar coordinate plane.

(b) Plot $E(3, 225°)$ and $F(3, 315°)$ in the figure.

(c) Plot G and H in the figure such that $EFGH$ forms a square. Write down the polar coordinates of G and H.

Helen and Eva are playing an archery game. Each of them shoots five arrows.



(a) If Helen hits A, B, C, D and E, describe the positions of these points by using polar coordinates.

(b) If Eva hits $F(1, 15°)$, $G(3, 225°)$, $H(2, 105°)$, $I(2, 300°)$ and $J(3, 120°)$, plot these points on the polar coordinates plane.

(c) If the one whose arrows attain a smaller total distance from O will be the winner, who will be the winner, Helen or Eva?

(a) Plot $A(3, 45°)$, $B(3, 90°)$, $C(3, 135°)$ and $D(3, 180°)$ on a polar coordinate plane.

(b) Draw a regular octagon $ABCDEFGH$ on the polar coordinate plane in (a) and write down the polar coordinates of the other four vertices.

(a) Plot $P(4, 60°)$ and $R(4, 240°)$ on a polar coordinate plane.

(b) Draw a square $PQRS$ on the polar coordinate plane in (a) and write down the polar coordinates of the other two vertices.

Plot $A(2m + 1, m – 5)$ on a rectangular coordinate plane if

(a) A lies on the x-axis,

(b) A lies on the y-axis.

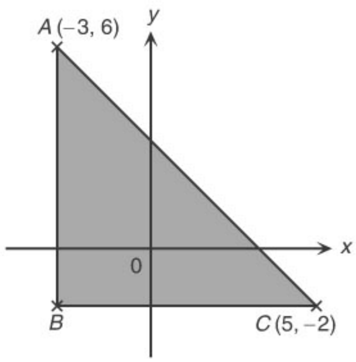
(a) Plot $Q(–5, 10)$ on a rectangular coordinate plane and draw a line passing through O and Q.

(b) Determine whether the following points lie on the line drawn in (a).

  (i) (2, –1)

  (ii) (3, –6)

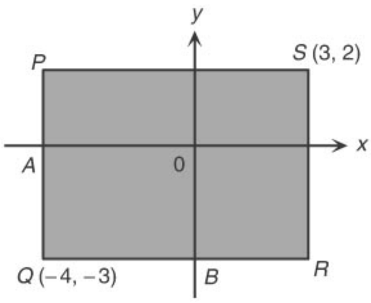
In the figure, $A(–3, 6)$ and $C(5, –2)$ are two vertices of $\triangle ABC$. AB is parallel to the y-axis and BC is parallel to the x-axis.



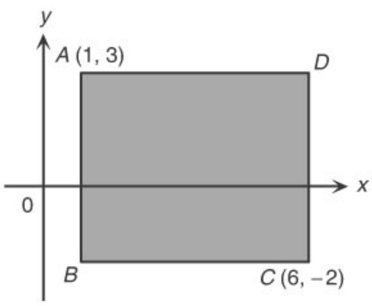
(a) Write down the coordinates of B.

(b) Determine whether the points $P(–3, 0)$, $Q(–1, –1)$ and $R(5, 1)$ lie inside, outside or on the side of $\triangle ABC$.

In the figure, $Q(-4, -3)$ and $S(3, 2)$ are two vertices of rectangle $PQRS$. PQ is parallel to the y-axis and QR is parallel to the x-axis. PQ cuts the x-axis at A and QR cuts the y-axis at B. Find the coordinates of P, R, A and B.



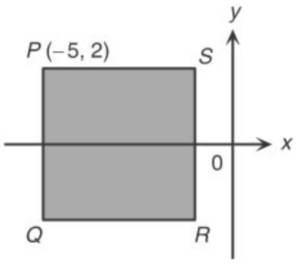
$A(1, 3)$ and $C(6, -2)$ are two vertices of rectangle $ABCD$ as shown in the figure. AB is parallel to the y-axis and BC is parallel to the x-axis.



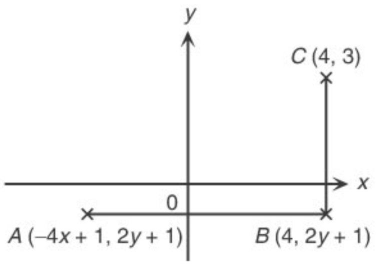
(a) Find the coordinates of B and D.

(b) Find the perimeter of $ABCD$.

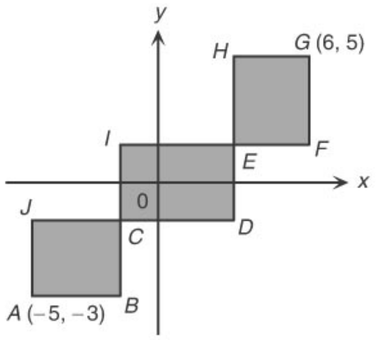
In the figure, $P(-5, 2)$ is a vertex of square $PQRS$. Given that the perimeter of $PQRS$ is 16 units, find the coordinates of Q, R and S.



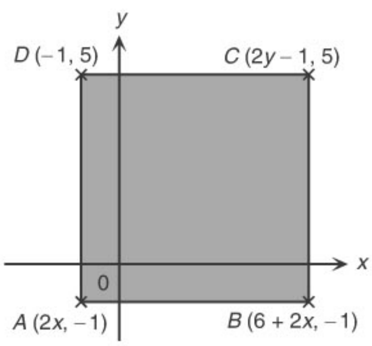
There are three points $A(-4x + 1, 2y + 1)$, $B(4, 2y + 1)$ and $C(4, 3)$ in the figure. B lies on the right of A and the distance between them is 7 units; C lies vertically above B and the distance between them is 4 units. Find x and y.



In the figure, AB, CD, EF, HG, IE and JC are parallel to the x-axis. JA, CB, ED, GF, HE and IC are parallel to the y-axis. If the coordinates of A and G are (–5, –3) and
(6, 5) respectively, find the perimeter of the figure.



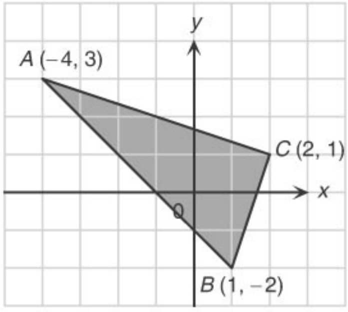
$A(2x, –1)$, $B(6 + 2x, –1)$, $C(2y – 1, 5)$ and $D(–1, 5)$ formed a square on a rectangular coordinate plane.



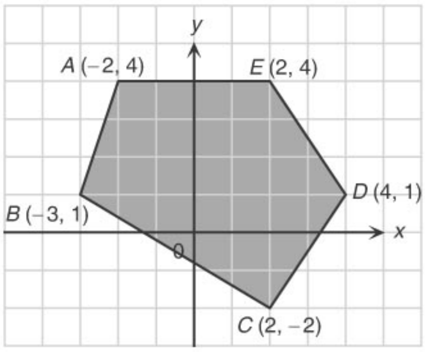
(a) Find AB.

(b) Find x and y.

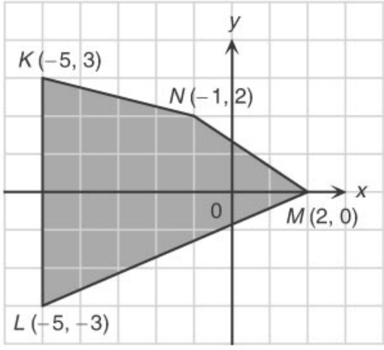
Find the area of $\triangle ABC$ in the figure.



Find the area of pentagon *ABCDE* in the figure.



Find the area of quadrilateral *KLMN* in the figure.



Set 5 Q

According to the following information, draw rectangle $ABCD$ on a rectangular coordinate plane.

(i) The coordinates of A and B are $A(-3, 4)$ and $B(-3, -1)$ respectively.

(ii) DC is on the right of AB.

(iii) The length of BC is two times the length of DC.

The vertices of rectangle $ABCD$ are $A(a-3, 4)$, $B(-5, b+1)$, $C\left(\frac{c}{3}, -4\right)$ and $D\left(6, \frac{2d-1}{2}\right)$. It is given that AB is perpendicular to the x-axis.

(a) Find a, b, c and d.

(b) Write down the coordinates of the vertices of rectangle $ABCD$. Which quadrant does each of the vertices lie in?

There are two points $A\left(-3\frac{1}{2}, -2\right)$ and $B(5, -2)$ on a rectangular coordinate plane.

(a) If C is the reflection of B about the x-axis, find the coordinates of C.

(b) If D is the translation of A upwards by 6 units, find the coordinates of D.

(c) Plot points A, B, C and D on a rectangular coordinate plane. What kind of quadrilateral is $ABCD$?

(d) Find the area of quadrilateral $ABCD$.

The vertices of $\triangle KMN$ are $K(0, 2)$, $M(-5, -4)$ and $N(-2, -3)$. It is given that L is a line parallel to the y-axis and it passes through $(-1, 0)$.

(a) Draw $\triangle KMN$ and line L on a rectangular coordinate plane.

(b) If $\triangle K_1M_1N_1$ is the reflection $\triangle KMN$ about L, draw $\triangle K_1M_1N_1$.

(c) Find the area of trapezium KK_1MM_1.

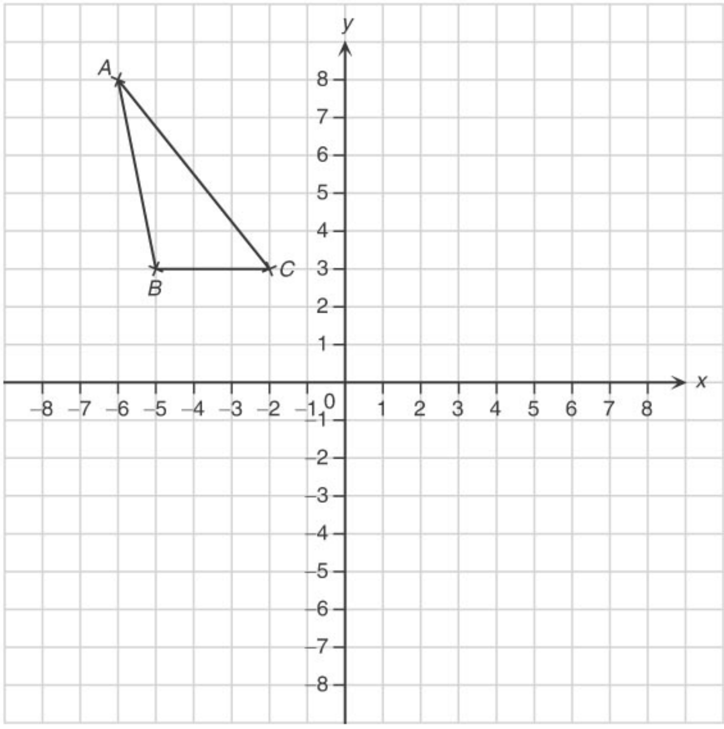
Complete the following table.

	Coordinates before transformation	Type of transformation	Coordinates after transformation
(a)	A(__, __)	Reflect about the y-axis	A'(5, –1)
(b)	B(__, __)	Translate upwards by 5 units and then translate to the left by 7 units	$B' \left(-4\frac{1}{2}, -8\right)$
(c)	C(__, __)	Rotate through 90° clockwise about the origin and then reflect about the x-axis	C'(–2, 5)

Complete the following table.

	Coordinates before transformation	Type of transformation	Coordinates after transformation
(a)	P(__, __)	Reflect about the y-axis and then reflect about the x-axis	P'(–2, –4)
(b)	Q(__, __)	Translate upwards by 4.5 units and then translate to the right by 6.5 units	Q'(–1, 0)
(c)	R(__, __)	Rotate through 270° anti-clockwise about the origin and then reflect about the x-axis	R'(0, –8)

The figure shows $\triangle ABC$ with vertices $A(-6, 8)$, $B(-5, 3)$ and $C(-2, 3)$.



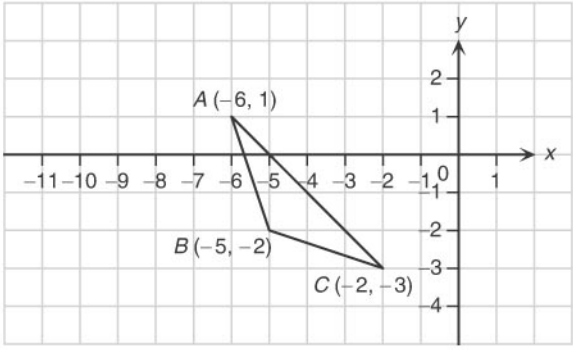
(a) Draw a line L in the figure such that L is parallel to the y-axis and it passes through (1, 0).

(b) If $\triangle ABC$ is reflected about L to $\triangle A_1B_1C_1$, draw $\triangle A_1B_1C_1$ in the figure.

(c) If $\triangle A_1B_1C_1$ is rotated through 180° anti-clockwise about O to $\triangle A_2B_2C_2$, draw $\triangle A_2B_2C_2$ in the figure.

(d) Do $\triangle ABC$, $\triangle A_1B_1C_1$ and $\triangle A_2B_2C_2$ have the same shape and size? Find the areas of $\triangle ABC$, $\triangle A_1B_1C_1$ and $\triangle A_2B_2C_2$.

The figure shows $\triangle ABC$ on a rectangular coordinate plane.

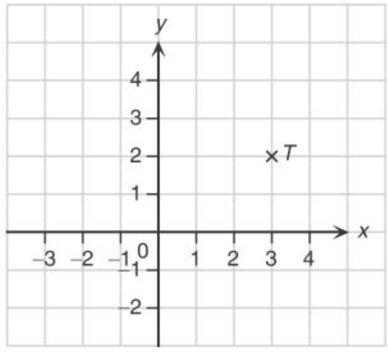


(a) If $\triangle ABC$ is reflected about the x-axis to $\triangle A_1B_1C_1$, draw $\triangle A_1B_1C_1$ in the figure and write down the coordinates of the vertices of $\triangle A_1B_1C_1$.

(b) If $\triangle ABC$ is rotated through 270° anti-clockwise about A to $\triangle AB_2C_2$, draw $\triangle AB_2C_2$ in the figure and write down the coordinates of the vertices of $\triangle AB_2C_2$.

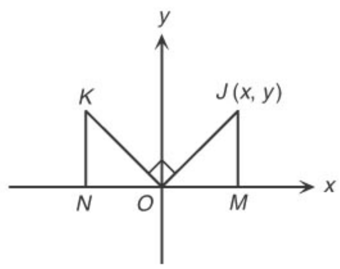
Set 6 Q

Find the coordinates of T on the rectangular coordinate plane.



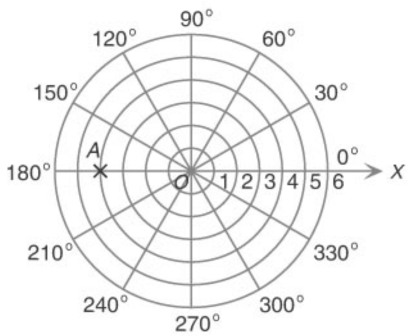
A. (2, 2) B. (2, 3) C. (3, 2) D. (3, 3)

In the figure, K is the rotation of $J(x, y)$ through 90° anti-clockwise about O. Given that KN and JM are both perpendicular to the x-axis, which of the following is incorrect?



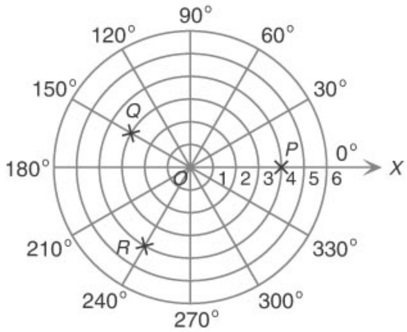
A. $OJ = OK$
B. The coordinates of K is $(-y, x)$.
C. The coordinates of M is $(x, 0)$.
D. $\angle JOM = 45°$

Find the polar coordinates of A in the figure.



A. (4, 90°)
B. (–4, 90°)
C. (4, 180°)
D. (–4, 180°)

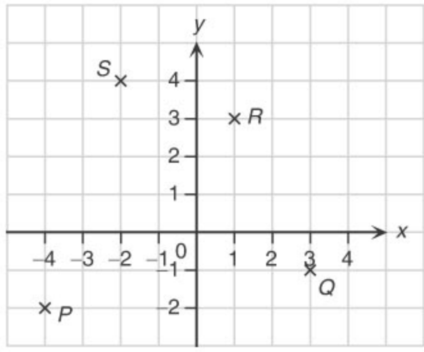
Find the polar coordinates of P, Q and R in the figure.



A. $P(4, 150°)$, $Q(3, 0°)$, $R(4, 240°)$
B. $P(4, 240°)$, $Q(3, 150°)$, $R(4, 0°)$
C. $P(4, 150°)$, $Q(3, 240°)$, $R(4, 0°)$
D. $P(4, 0°)$, $Q(3, 150°)$, $R(4, 240°)$

On a polar coordinate plane, which of the following two points are not collinear with the pole?
A. (3, 35°) and (6.5, 215°)
B. (1, 330°) and (6, 330°)
C. (4, 15°) and (4, 105°)
D. (7, 124°) and (7, 304°)

Which of the following points lies in quadrant II?



A. P
B. Q
C. R
D. S

$C(-2, 5)$ lies in
A. quadrant I.
B. quadrant II.
C. quadrant III.
D. quadrant IV.

Given five points $A(-3, 4)$, $B(4, 4)$, $C(4, 6)$, $D(4, -2)$ and $E(-3, -2)$. Which of the following two lines are parallel to the x-axis?

A. AB and AC

B. AB and DE

C. AE and DE

D. BC and BD

The line passing through $A(-5, 1)$ and $B(-5, -4)$ is

A. parallel to the x-axis.

B. parallel to the y-axis.

C. intersecting with the x-axis and the y-axis.

D. not intersecting with the x-axis and the y-axis.

Find the distance between $A(-3, -2)$ and $B(-3, -4)$.

A. 0 unit

B. 2 units

C. 6 units

D. 8 units

Find the distance between $A\left(0, -2\frac{5}{11}\right)$ and the origin.

A. 0 unit

B. $-2\frac{5}{11}$ units

C. $2\frac{5}{11}$ units

D. $\frac{5}{11}$ units

Given a point $P\left(-5\frac{2}{3}, -2\right)$ and the distance between P and Q is $1\frac{1}{3}$ units, which of the following cannot be the coordinates of Q?

A. $\left(-6\frac{1}{3}, -2\right)$

B. $(-7, -2)$

C. $\left(-5\frac{2}{3}, -3\frac{1}{3}\right)$

D. $\left(-5\frac{2}{3}, -\frac{2}{3}\right)$

Given two points $A(-3, 1)$ and $B(-3, -4)$, which of the following is/are correct?

I. $AB = 3$ units

II. AB is parallel to the y-axis.

III. AB intersects with the x-axis.

A. I only

B. III only

C. II and III only

D. I and III only

In an equilateral triangle ABC, the coordinates of the vertices of A and B are $\left(-2, -3\frac{3}{8}\right)$ and $\left(-2, -1\frac{1}{4}\right)$ respectively. Find the perimeter of $\triangle ABC$.

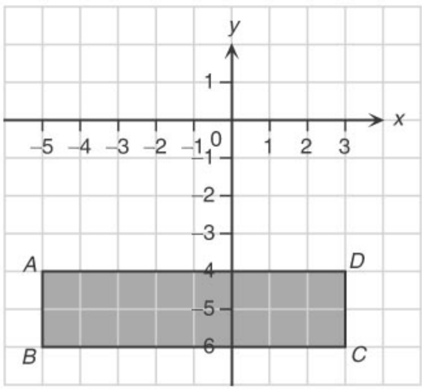
A. $2\frac{1}{8}$ units

B. 4 units

C. $4\frac{5}{8}$ units

D. $6\frac{3}{8}$ units

Find the area of rectangle $ABCD$ in the figure.



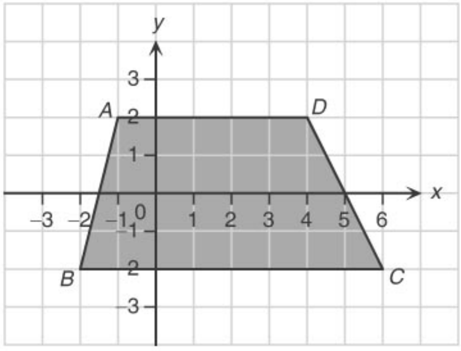
A. 12 sq. units

B. 16 sq. units

C. 18 sq. units

D. 24 sq. units

Find the area of trapezium $ABCD$ in the figure.



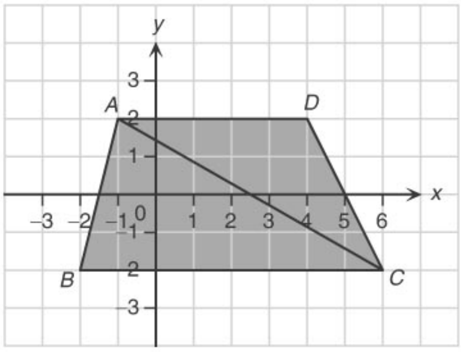
A. 13 sq. units

B. 24 sq. units

C. 26 sq. units

D. 29 sq. units

What is the difference between the areas of $\triangle ABC$ and $\triangle ACD$?



A. 3 sq. units

B. 6 sq. units

C. 8 sq. units

D. 12 sq. units

On a rectangular coordinate plane, the coordinates of the vertices of $\triangle PQR$ are $P(5a, -2)$, $Q(4, -6)$ and $R(-6, -6)$. Find the area of $\triangle PQR$.

A. 10 sq. units

B. 20 sq. units

C. $(40a + 48)$ sq. units

D. $(40a - 32)$ sq. units

On a rectangular coordinate plane, the coordinates of the vertices of quadrilateral $EFGH$ are $E(-1-2b, 5)$, $F(1, -4)$, $G(4b, -1)$ and $H(1, 6)$, where $b > 0$. If the area of $EFGH$ is 65 sq. units, find b.

A. 0.5

B. 1

C. 1.5

D. 2

$A(-2, 1)$ is translated to the right by 3 units and then translated upwards by 2 units to A_1. Find the coordinates of A_1.

A. (1, 3)

B. (1, –1)

C. (0, 4)

D. (3, 2)

$R(-3, -2)$ is reflected about the x-axis to R'. Find the coordinates of R'.

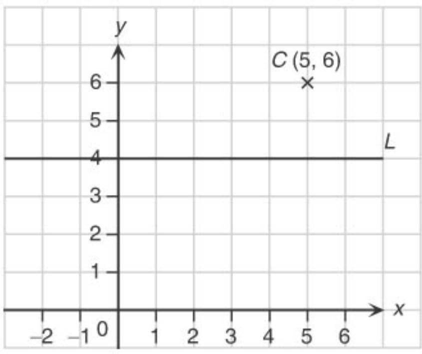
A. (3, 2)

B. (3, –2)

C. (–3, 2)

D. (–2, 3)

$C(5, 6)$ is reflected about L to C'. Find the coordinates of C'.



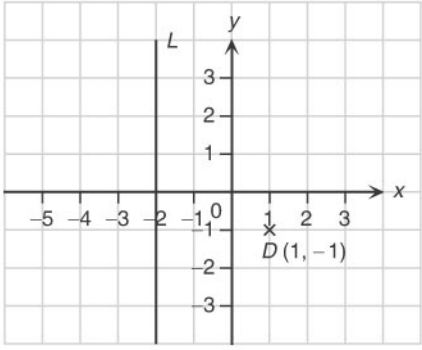
A. (3, 6)

B. (–5, 6)

C. (5, 2)

D. (5, –6)

$D(1, -1)$ is reflected about L to D'. Find the coordinates of D'.



A. $(-5, -1)$

B. $(-1, -1)$

C. $(1, -7)$

D. $(5, 1)$

If $N(5, -8)$ is reflection of $M(5, -1)$ about line L, then L must

A. pass through $(5, -4.5)$.

B. pass through $(5, 0)$.

C. be perpendicular to the x-axis.

D. pass through the origin.

$A(3, -9)$ is rotated through 180° anti-clockwise about the origin to A'. Find the coordinates of A'.

A. $(-3, -9)$

B. $(3, 9)$

C. $(9, -3)$

D. $(-3, 9)$

$T(-a, b)$ is rotated through 90° anti-clockwise about the origin to T'. Find the coordinates of T'.

A. (b, a)

B. $(a, -b)$

C. $(-b, a)$

D. $(-b, -a)$

$S(-2, 6)$ is translated upwards by 2 units to U, then U is rotated through 90° anti-clockwise about the origin to W. Find the coordinates of W.

A. $(-2, -8)$
B. $(-6, 0)$
C. $(2, -8)$
D. $(-8, -2)$

$A(-2, -3)$ is first reflected about the y-axis to P, then P is rotated through 90° anti-clockwise about the origin to Q. Find the coordinates of P and Q.

A. $P(-2, 3)$, $Q(-3, -2)$
B. $P(2, -3)$, $Q(3, 2)$
C. $P(-3, 2)$, $Q(-3, -2)$
D. $P(-3, 2)$, $Q(3, 2)$

Which of the following is true about points $P(a, b)$ and $Q(-a, b)$?

A. P is the reflection of Q about the x-axis.
B. Q is the reflection of P about the y-axis.
C. P is the rotation of Q through 90° anti-clockwise about the origin.
D. Q is the rotation of P through 180° anti-clockwise about the origin.

$P(a, b)$ is rotated through 180° anti-clockwise about the origin O to $Q(c, d)$. Which of the following is/are true?

I. $OP = OQ$
II. $a = -c$
III. $b = d$

A. I only
B. II only
C. III only
D. I and II only