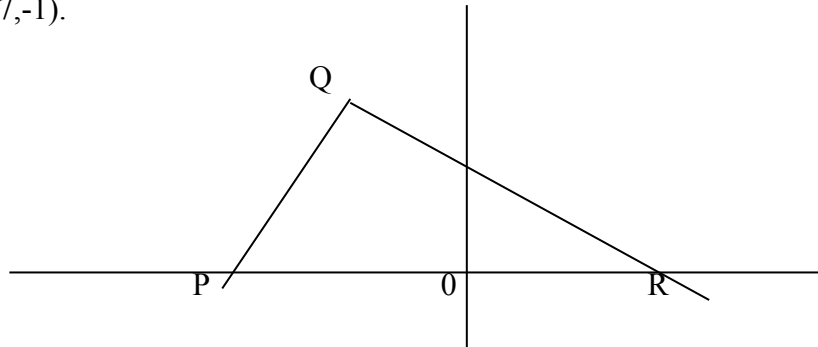
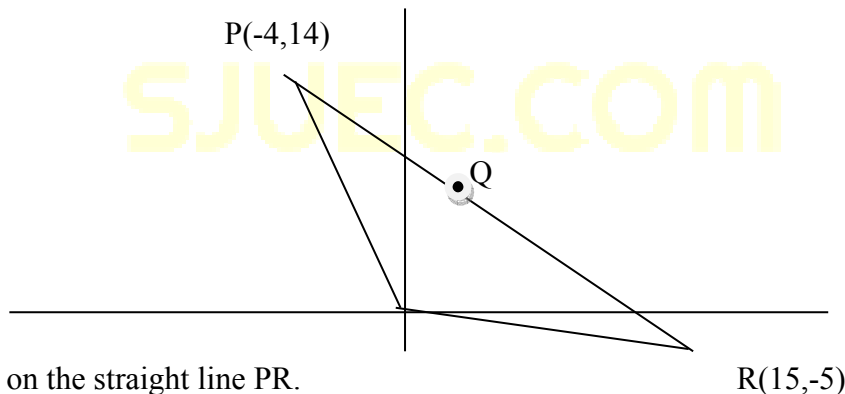


Coordinate Geometry 2

1. A point P moves along the circumference of a circle with center Q(1,4). The circumference passes through point R(5,-3) and point S(h,8).
  - a. Find
    - i. The equation of locus of the point P
    - ii. The values of h
  - b. The tangent to the circle at point R intercept x-axis at point T. Find the area of the triangle RQT.
2. In the diagram,  $\angle PQR=90^\circ$ , the equation of the line QR is  $3y + 2x = 9$  and the coordinates of point P is (-7,-1).



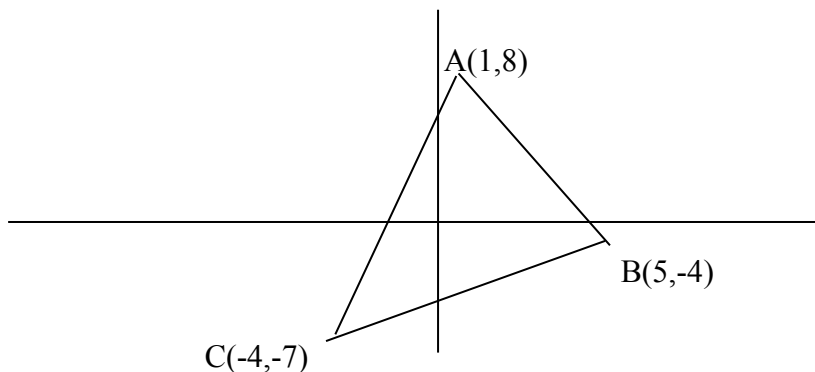
- a. Find
    - i. The equation of the straight line PQ
    - ii. The coordinate of the point Q
  - b. The straight line PQ is extended to a point S such that  $PQ:QS = 1:2$ . Find the coordinates of S
  - c. A point K moves such that its distance from point Q is always 3 units. Find the equation of the locus of K
3. The diagram shows the triangle OPR such that O is the origin.



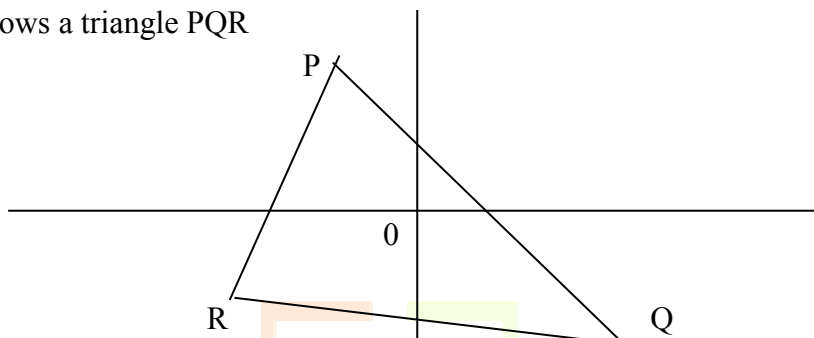
Point Q lies on the straight line PR.

R(15,-5)

- a. Calculate the area, in  $\text{unit}^2$ , of the triangle OPR
  - b. Find the coordinates of point Q, given  $PQ:QR=1:2$
  - c. Given that a point A(x,y) moves such that its distance from point R is twice the distance from point P
    - i. Find the equation of the locus of A
    - ii. Hence, determine whether or not the locus of A intersects the x-axis
4. A straight line  $3y + 2x = 12$  intersects the y-axis and x-axis at point A and point B respectively.
    - a. Find the coordinates of point A and point B
    - b. Find the equation of the perpendicular bisector of the straight line AB
    - c. Given point P moves such that  $AP:PB=1:2$ , find the equation of the locus of P
  5. The diagram shows a triangle ABC

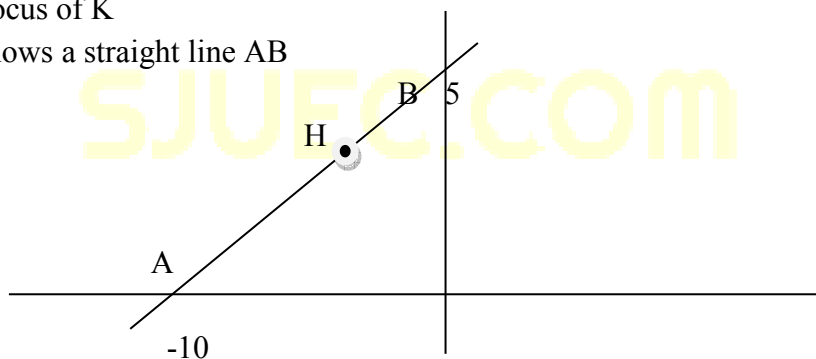


- a. Calculate the area, in  $\text{unit}^2$ , of triangle ABC
  - b. Find the equation of the straight lines AB and BC
  - c. Hence, determine whether the straight lines AB and BC are perpendicular.
6. The diagram shows a triangle PQR



The Equations of the straight lines PQ, QR and PR are  $y + 2x = 6$ ,  $3y + x + 7 = 0$  and  $y = 3x + 11$  respectively.

- a. Find the coordinates of the points P, Q and R
  - b. Calculate the area of the triangle PQR
  - c. A point K moves such that its distance from R is thrice its distance from Q. Find the equation of the locus of K
7. The diagram shows a straight line AB

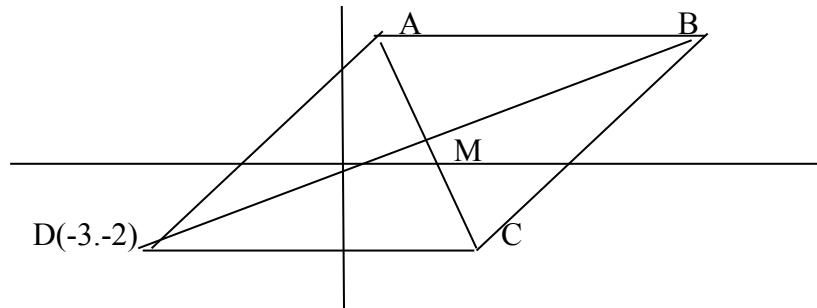


Point H is a point on the straight line AB such that  $AH:HB = 3:2$

- a. Determine the coordinates of the point H
  - b. Find the equation of the straight line that passes through the point H and perpendicular to the line AB
  - c. A point  $P(x,y)$  moves such that  $\angle APB = 90^\circ$ . Find the equation of the locus of P
8.  $H(3,1)$  and  $J(-5,2)$  are two points on the Cartesian plane. A point P moves such that  $PO=PJ$ .
- a. Determine the equation of the locus of P
  - b. Find the equation of the straight line that is perpendicular to the straight line OH and passes through point H. Hence, determine the point K which is the point of intersection between the line that is perpendicular to OH and the x-axis.
  - c. Calculate the area, in  $\text{unit}^2$  of the triangle HJK

Coordinate Geometry 2

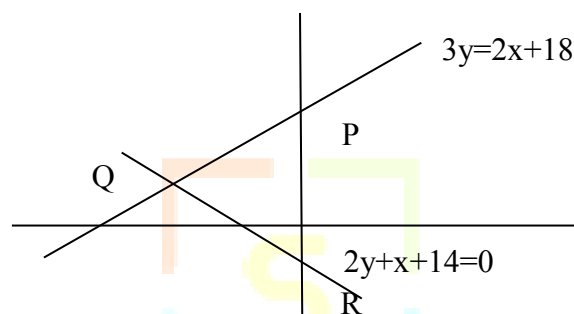
9. The diagram shows a parallelogram ABCD



Given that the equation of the straight line BC is  $y = 2x - 5$  and M is the point of intersection between the diagonals AC and BD

- Find the equation of the straight line AD
- Determine the coordinates of the point M
- Calculate the area, in unit<sup>2</sup>, of the parallelogram ABCD

10.



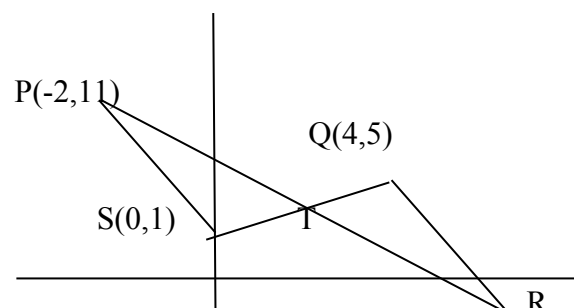
In the diagram, the equation of the straight line PQ and QR are  $3y = 2x + 18$  and  $2y + 3x + 14 = 0$  respectively. Q is the point of intersection between straight lines PQ and QR.

- Find the coordinates of point Q
- Show that the straight line PQ is perpendicular to the straight line QR
- The straight line PQ is extended to a point S such that  $PQ:QS=2:3$ . Find the coordinates of point S. Hence, calculate the area of the triangle PSR.

11. Point A(-2,5), B(4,4)C(h,k) and D(-4,-1) are the vertices of a parallelogram.

- Determine the values of h and k
- Find the equation of the perpendicular bisector to the line AC
- Calculate area of the quadrilateral ABOD, where O is the origin on the Cartesian plane

12. In the diagram, the straight line PTR and QTS intersect each other at point T



Point T is the midpoint of the straight line SQ and divides the line PR in the ratio of 4:3.

- Find the coordinates of point T and R
- Find the equations of the straight lines PS and QR
- Hence, find the point of intersection between straight line PS and QR