The Straight Line 2

1. Find the equation of the line which passes through the point P(3,-5) and is parallel to the line passing through the points (-1,4) and (7,-2).

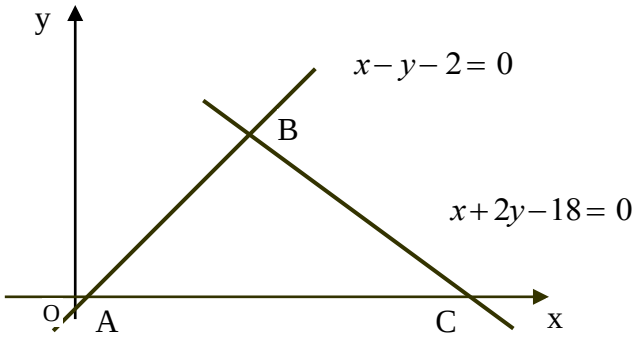
2. Given that the points (3 , -2) , (4 , 5) and (-1 , a) are collinear , find the value of a .

3. Given that the lines with equations $x+4y=7$, $3x+y=10$ and $x-5y+a=0$ meet at the same point (i.e. they are concurrent), find the value of a .

4. PQRS is a rhombus where vertices P , Q and S have coordinates (-5 , -4) , (-2 , 3) and (2 , -1) respectively.

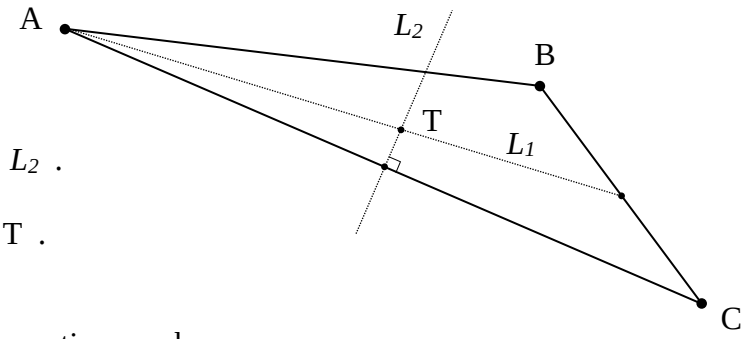
   Establish the coordinates of the fourth vertex R , and hence, or otherwise, find the equation of the diagonal PR.

5. AB has equation $x-y-2=0$
   CB has equation $x+2y-18=0$
   Calculate the size of angle ABC



6. Triangle ABC has as its vertices A(-18,6) , B(2,4) and C(10,-8) .

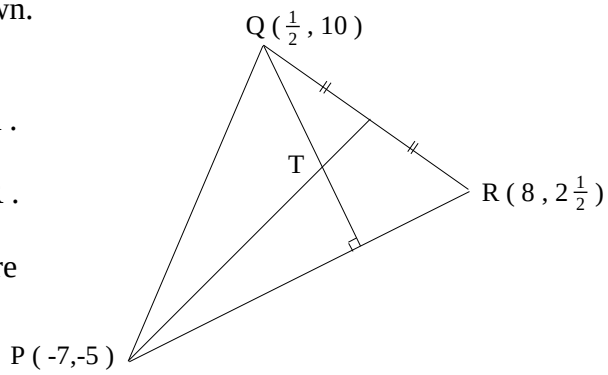
   L_1 is the median from A to BC. L_2 is the perpendicular bisector of side AC.



   (a) Find the equations of L_1 and L_2 .

   (b) Hence find the coordinates of T .

7. In the diagram below triangle PQR has vertices as shown.



   (a) Find the equation of the median from P to QR .

   (b) Find the equation of the altitude from Q to PR .

   (c) Hence find the coordinates of the point T where these two lines cross.