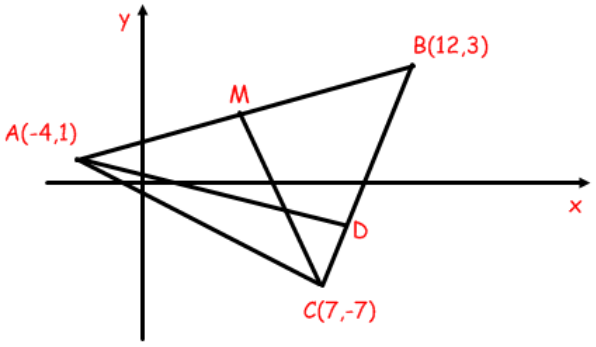
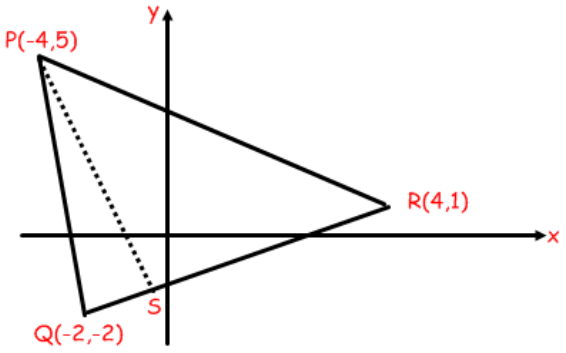
Higher Homework – The Straight Line

Total = 30 marks

1. A triangle ABC has vertices A(-4,1), B(12,3) and C(7,-7)
   a) Find the equation of the median CM. 3
   b) Find the equation of the altitude AD. 3
   c) Find the coordinates of the point of intersection of CM and AD. 2

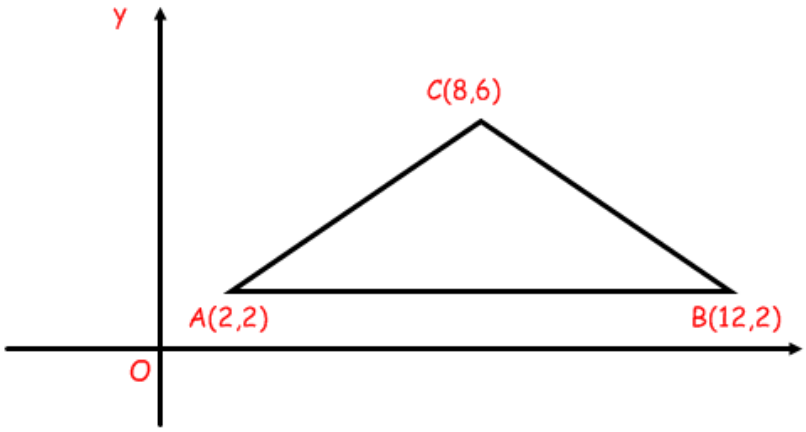


2. P(-4,5), Q(-2,-2) and R(4,1) are the vertices of the triangle PQR as shown in the diagram. Find the equation of PS, the altitude from P. 3



3. P(1,1), Q(-1,0) and R(-2,3). If PQRS is a parallelogram, what are the gradients of RS and PS? 4

4. Triangle ABC has vertices A(2,2), B(12,2) and C(8,6).
   a) Write down the equation of l_1, the perpendicular bisector of AB. 2
   b) Find the equation of l_2, the perpendicular bisector of AC. 4
   c) Find the point of intersection of lines l_1 and l_2. 1



5. The diagram shows a rhombus PQRS with its diagonals PR and QS.
   PR has equation $y = 2x - 2$
   Q has coordinates (-2,4)

   a) (i) Find the equation of the diagonal QS.
      (ii) Find the coordinates of T, the point of intersection of PR and QS. 6

   b) R is the point (5,8). Write down the coordinates of P. 2