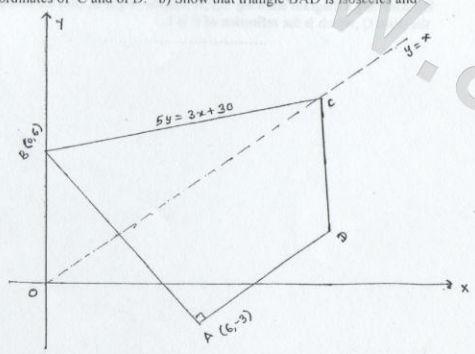
igcse.tk Work sheet - Coordinates. **Alevel.tk**

1) The points A and B have coordinates (4,-2) and (10,6) respectively. C is the mid point of AB. Find a) the coordinates of C b) the length of AC c) the equation of the circle that has AB as a diameter.

2) A is the point (2,7) and B is the point (-1,-2) . a) Find the equation of the line through A parallel to the line $y=4x-5$, giving your answer in the form $y= mx+c$. b) Calculate the length of AB, giving your answer in the simplified surd form. c) Find the equation of the line which passes through the mid point of AB and which is perpendicular to AB. Give your answer in the form $ax+by+c=0$, where a,b and c are integers.

3)The straight line $y=x-1$ meets the curve $y= x^2-5x-8$ at the points A&B. The curve $y=p+qx-2x^2$ also passes through the points A&B . Find the values of p&q.

4) The diagram which is not drawn to scale , The line CD is parallel to the y-axis. a) find the coordinates of C and of D. b) Show that triangle BAD is isosceles and find its area.



5) Three points have coordinates A(2,6) , B(8,10) and C(6,0) . The perpendicular bisector of AB meets the line BC at D . Find a) the equation of the perpendicular bisector of AB in the form $ax+by+c$ b) the coordinates of CD.

6) The points A, B,C have coordinates (3,-5) , (4,-6), (11,1) respectively.
a) Show that AB is perpendicular to BC b) The coordinates of the mid point of AC.

7) The point A has coordinates (1,1) and the point B has coordinates (5,k) .The line AB has equation $3x+4y=7$. a) show that $k= -2$.
The line AC is perpendicular to the line AB.
b) Find the gradient of AC c) Hence find an equation of the line AC.
d) Given that the point C lies on the X-axis, find its x- coordinates.

8) With respect to the origin O, the vertices of Δ ABC are A(2,5), B(2,-1) and C(-2,3) . a) Prove that for all values of t, the points with coordinates (t-1,t) are equidistant from B and C. b) Given that the point D is equidistant from A,B and C, calculate the coordinates of D

9) A straight line L_1 passes through the points A and B with coordinates(2,2) and (6,0) respectively. a) Find an equation of L_1
The straight line L_2 passes through the point C with coordinates (-9,0) and has Gradient 1/4.
b) Find an equation of L_2 .
The lines L_1 and L_2 intersect at the point D.
c) Calculate to 2 decimal places , the length of AD.
d) Calculate the area of ΔDCB.

10) The line L has equation $(1/2)x$ and the point P has coordinates (5,0) .Find the equation of the line through P perpendicular to L.Hence find the coordinates of the point N which is the foot of the perpendicular from P to L.
By sketching a diagram showing L,P,N and the origin O, find the coordinates of the point Q ,which is the reflection of P in L.

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