C

B

(-18, -15.72)

A

D

Homework:

The diagram above shows a quadratic graph with the equation $y=2x^2 + 15x + 18$. Line AB has point (-18,-15.72) along its length and meets the interception of the x-axis with the higher root of the quadratic. Line CD is perpendicular to the line AB. CD runs through the interception of the lower root with the x axis.

At what point does AB and CD intersect?

Help:

1. Calculate the roots of the quadratic curve;
2. Use the upper root and the point given on AB to calculate an equation for AB;
3. Use the lower root and the equation for AB to calculate an equation for CD;
4. Solve AB and CD simultaneously to find the intersection of AB and CD.
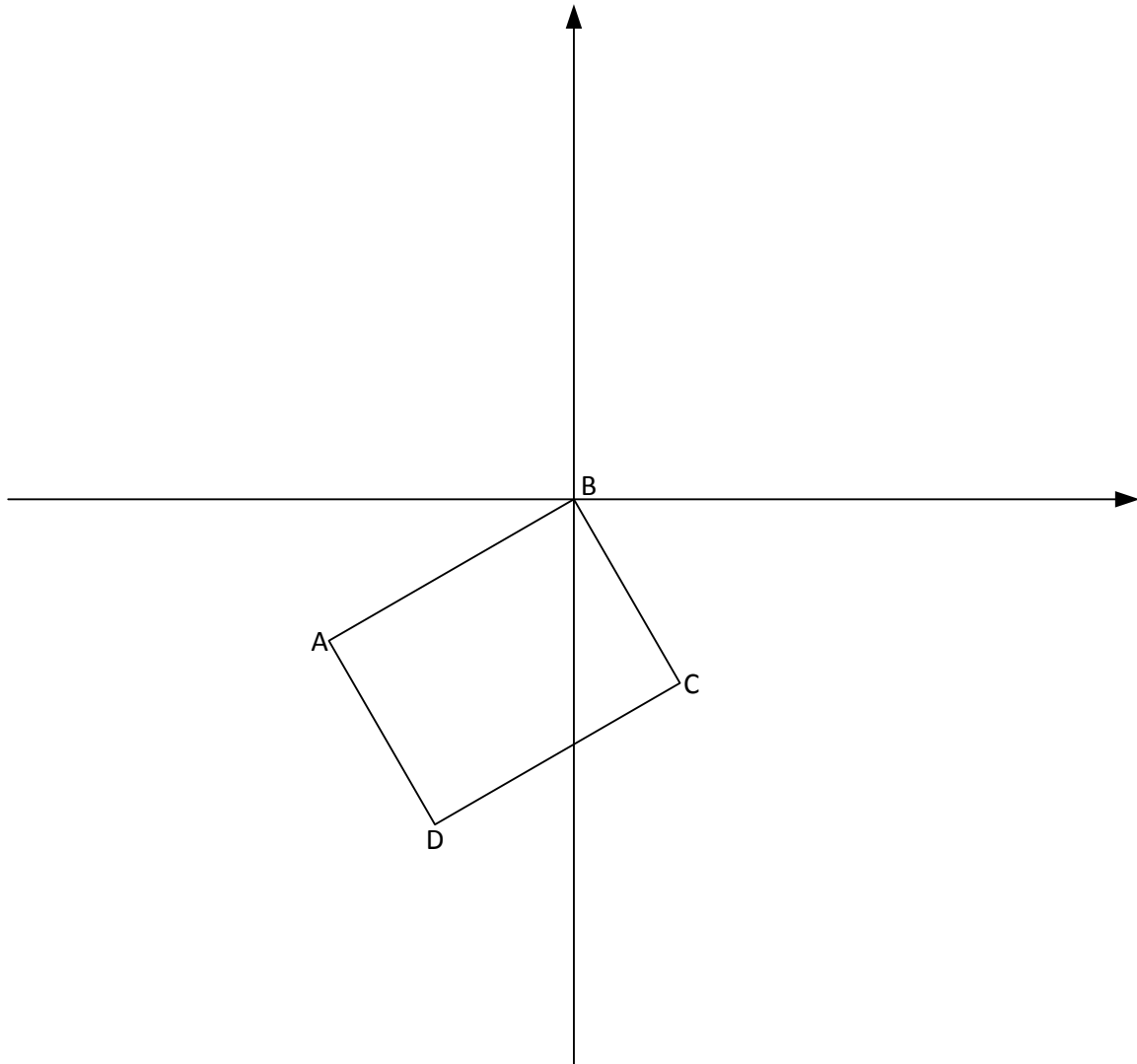
DO NOT SCALE

ABCD is an oblong. B is located at the origin of the graph.   CD and AB are 1.6 times the length of BC.
Point C is located at (3,-4). Labels are placed at 1cm intervals upon the axes.

- i)   Find the equation of line BC.
- ii)   Find the equation of line DC.
- iii)   Find the co-ordinates of point A.
- iv)   Calculate the area of the oblong.

For the following equations, find the equation of a *parallel line that goes through the point* specified and the *perpendicular line that goes through the point* specified:

1. $y=4x + 7$ (8,9)
2. $y=7x + 3$ (12, 5)
3. $y=5x + 6$ (7,3)
4. $3y + 2x =12$ (3,8)
5. $6y + 5x = 18$ (8,-7)
6. $7y + 3x + 12 = 23$ (7,9)
7. $3(y+3) - 5(x+8) + 6(2-4y) = 51$ (9,10)