S3 Homework 4

Non-calculator section:

1. Evaluate
   (a) $4.6 - 27.6 \div 40$ (b) $66\frac{2}{3}\%$ of £144 (c) $\frac{2}{3}$ of $\left(\frac{1}{2} - \frac{1}{5}\right)$

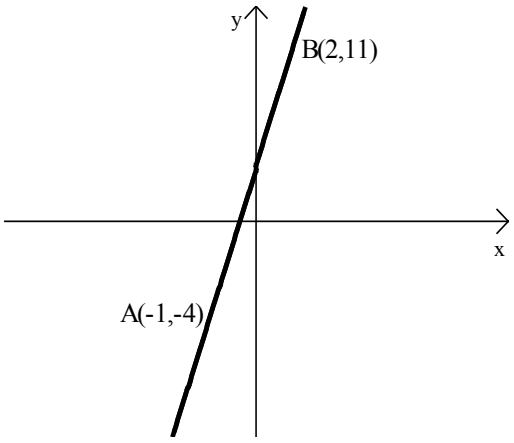
2. $A = x^2(x - y^2)$. Calculate the value of A when $x = -3$ and $y = -2$.

3. Simplify
   (a) $3(2x - 1) - (x - 4)$ (b) $4p - (2p - 3)^2$

4. A lake has an estimated volume of 3.66×10^5 litres of water. A sample of one litre of water from the lake contains 40 000 bacteria. If this sample is representative of the whole lake, how many bacteria are in the lake.

5. (a) Find the equation of the line joining the points A(-1,-4) and B(2,11).

   (b) Find the coordinates of the points where this line cuts the x and y axes.



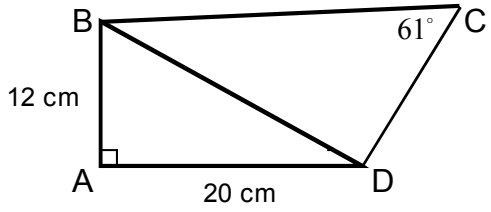
6. A group of teachers and pupils go to the theatre. There are 18 people in the group altogether.
   (a) Using x to represent the number of teachers in the group and y to represent the number of pupils construct an equation in x and y.

   Tickets cost £7 for teachers and £4 for pupils. The total cost of the tickets is £84.
   (b) Construct a second equation in x and y.
   (c) Find the number of pupils going to the theatre.

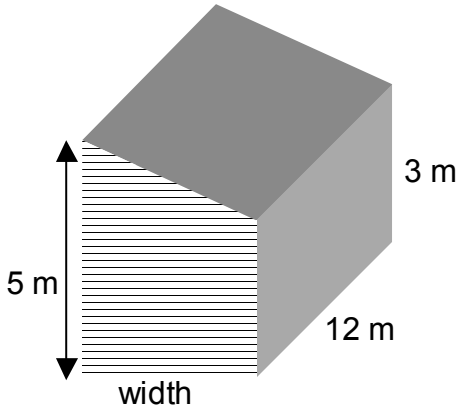
Calculator section:

7. A house valued at £85 000 in 1998 fell in value at a rate of 5% per annum for the next two years before rising in value at a rate of 5% per annum for the following two years. Find the value of the house in the year 2002.

8. Calculate the length of CD in the diagram opposite.



9. A garden shed is shown opposite. If the volume of this shed is 200 cm^3, find the width of the shed.



10. The diagram opposite shows a tangent kite. Find the size of angle OEA.