Year 11 Paper 2 : Revision 2 (Calculator Allowed)

1) Increase £7328 by 35%

7328×1.35

$= £9892.80$

2) When a number is increased by 15% the answer is 138. What is the original number.

$\square + 15\% = 138$

$\therefore \quad 115\% = 138$

$1\% = 138/115$

$100\% = \frac{138}{115} \times 100 = 120$

3) Factorise

a) $2x^2 + 6x$

$= 2x(x+3)$

b) $4x^2 - 9$

$= (2x)^2 - 3^2 = (2x+3)(2x-3)$

c) $x^2 - 5x - 6$

$= (x-6)(x+1)$

d) $3x^2 - 7x - 6$

$= (3x+2)(x-3)$

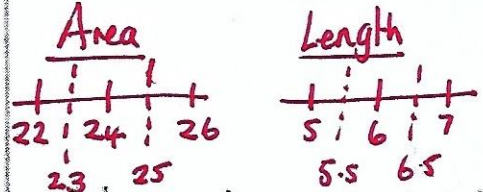
4) The length of a rectangle is measured as 6m to the nearest m

The area of the rectangle is measured as $24m^2$ to the nearest $2m^2$

Calculate the least value the width of the rectangle could be.

$A = lw$

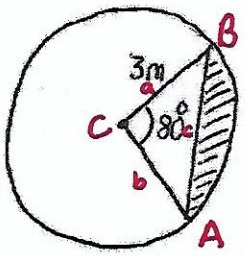
$\frac{A}{l} = w \qquad \therefore \quad \frac{A_{min}}{L_{MAX}} = w_{min}$



$\frac{23}{6.5} = w_{min}$

$3.538^{m} =$ least width value

5) Calculate the area shaded



Area /// = area sector − area △

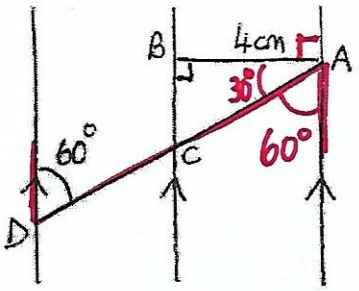
$= \frac{80}{360}\pi r^2 - \frac{1}{2}ab\sin C$

$= \left(\frac{80}{360} \times 3.14 \times 3 \times 3\right) - \left(\frac{1}{2} \times 3 \times 3 \sin 80\right)$

$= 6.28 - 4.43$

$= 1.85\ m^2$

6)



Calculate AC

$\cos 30^\circ = \frac{4}{AC}$

$AC \cos 30^\circ = 4$

$AC = \frac{4}{\cos 30^\circ}$

$AC = 4.61\text{cm}$

7) Solve the following quadratic equation to 2 decimal places

FIVE → $5x^2 + 2x - 8 = 0$

$a = 5 \quad b = 2 \quad c = -8$

$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

$x = \frac{-2 \pm \sqrt{2^2 - 4(5)(-8)}}{2(5)}$

$x = \frac{-2 \pm \sqrt{4 + 160}}{10}$

$x = \frac{-2 \pm \sqrt{164}}{10}$

$x = \frac{-2 + 12.806}{10}$

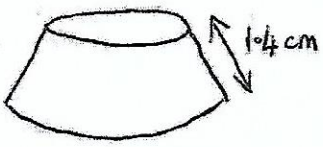
$x = 1.08$

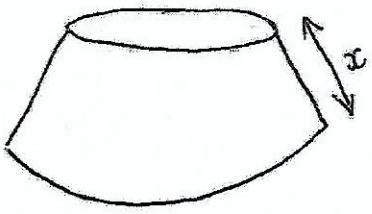
OR

$x = \frac{-2 - 12.806}{10}$

$x = -1.48$

8)





The solids are similar.

- The surface area of the small solid is 32cm^2
- The surface area of the large solid is 128cm^2
- The volume of the large solid is 160cm^3

a) Calculate the length scale factor

Area SF $= \frac{128}{32} = 4$

Length SF $= \sqrt{4} = 2$

b) Calculate x $\quad x = 1.4 \times 2 = 2.8\text{cm}$

c) Calculate the volume of the smaller solid

Vol. small $= \frac{\text{Vol large}}{2^3} = \frac{160}{8} = 20\text{cm}^3$