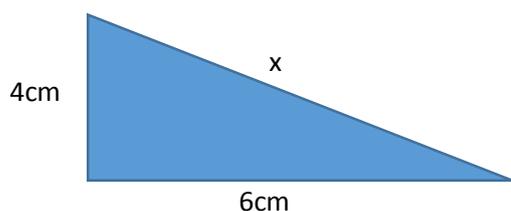


**National 5 – Homework 8 ( non calculator)**

1. Simplify each surd (a)  $\sqrt{20}$  (b)  $\sqrt{50}$  (c)  $\sqrt{108}$
2. Simplify (a)  $4\sqrt{3} + 6\sqrt{3}$  (b)  $3\sqrt{2} + \sqrt{72}$  (c)  $\sqrt{8} + \sqrt{32}$
3. Simplify  $(4 - \sqrt{3})(4 + \sqrt{3})$
4. Rationalise the denominator (a)  $\frac{10}{\sqrt{5}}$  (b)  $\frac{24}{\sqrt{3}}$  (c)  $\frac{36}{5\sqrt{2}}$
5. Calculate the exact length of side x as a surd in its simplest form (right angled triangle)



6. Use the rules of indices to simply each term  
(a)  $(x^3)^4$  (b)  $4y^3 \times 5y^4$  (c)  $48y^5 \div 8y^3$  (d)  $(y^4)^2 \times y^5$  (e)  $4t^5 \div 2t^5$   
(f)  $\frac{y^5 \times y^3}{y^4}$  (g)  $\frac{4y^5 \times 5y^3}{2y^{-3}}$  (h)  $4y^3(5y + 6y^3)$  (i)  $\frac{(4y^2)^3 \times 2y^3}{4y^{-3}}$
7. Simplify this expression and write answer with a positive power

$$\frac{8y^5 \times 5y^4}{2y^{12}}$$

8. Solve the equation  $4(2x + 2) - 12 = -20$

9. Change the subject of the formula to x :  $\frac{Ft}{x^3} = Q$

10. A(2,4) and B (6, 20)

(a) Find the gradient of the line AB

(b) Hence, find the equation of the line AB