

S4 Homework – Week 29

Q1. Solve the following:

a. $3a + c = 10$
 $2a + 3c = 9$

b. $2m + 3n = 15$
 $3m - 2n = 16$

Q2. Rationalise the following:

a. $\frac{2}{\sqrt{3}}$

b. $\frac{5}{\sqrt{10}}$

c. $\frac{25}{3\sqrt{5}}$

Q3. Solve:

a. $x^2 - 9x = 0$

b. $x^2 - 7x - 18 = 0$

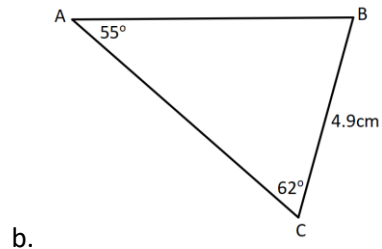
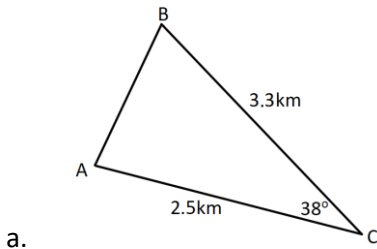
c. $2x^2 + 9x = 5$

Q4. A function is given $f(x) = 5 - x^2$, Evaluate $f(-1)$.

Q5. Two suitcases are mathematically similar.

The larger suitcase measures 1.2m in height and has a volume of 0.4m^3 . The smaller suitcase measures 0.8m. Calculate its volume.

Q6. Calculate the length of AB:



Q7. 2 apples and 5 pears cost 90 pence.

3 apples and a pear cost 57 pence.

Find the cost of an apple and of a pear.

Q8. Simplify:

a. $\frac{m^3}{n} \times \frac{n^8}{m^4}$

b. $\frac{10x - x^2}{100 - x^2}$

c. $\frac{x+2}{5} + \frac{x+3}{2}$

Q9. Change the subject of the formula to V:

$$T = u + \frac{V}{w}$$

Q11. Solve the equation $3x^2 + 7x + 1 = 0$, giving your answers correct to one decimal place.

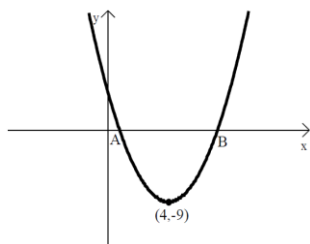
Q12. State the nature of the roots of:

a. $y = 4x^2 + 8x - 3$

b. $y = 3x^2 - 2x + 1$

Q13. From the diagrams below, use the information find the values of A & B and E :

a. $Y = (x + a)^2 + b$



b.

