

S4 Homework – Week 27

Q1. The price of a car has increased in value by 30%. If the car is now valued at £7800 what was its previous value?

Q2. Solve the following equations, $0 < x < 360$

a. $4\sin x + 3 = 6$

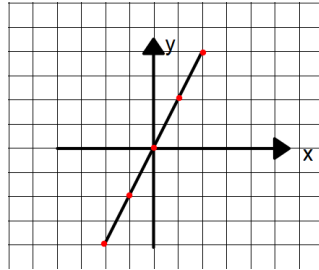
b. $10 - 2\cos x = 11$

c. $5 + 5\tan x = 1$

Q3. A quadratic equation is given as $y = (x-2)^2 + 2$

- Find the co-ordinates of the turning point and state its nature
- Write down the equation of the axis of symmetry.

Q4. Find the equation of the straight line shown below:



Q5. Find the compound interest on a sum of £1400 at a rate of 7.6% p.a. over a period of 7 years.

Q6. Solve $5x^2 - 6x + 1 = 0$

Q7. Solve the following system of equations:

a. $3x - 5y = 15$
 $2x - 2y = 10$

b. $3a - 7c = 5$
 $2a - 7c = 1$

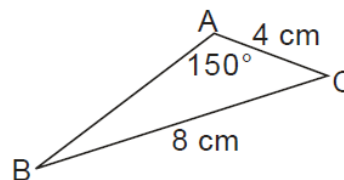
c. $4x + 4y = -20$
 $5x - 3y = -1$

Q8. A Function is given by $f(x) = 2x + 5$

- Evaluate $f(-1)$
- Find the two solutions when $f(g) = 3$

Q9. A farmer buys a new tractor for £42 000. The tractor depreciates at a rate of 10% in each of its first 2 years, and then at a rate of 8% in each successive year.
How long will it take for the tractor to be worth less than £26 000?

Q10. In the triangle ABC,



- AC = 4 centimetres
- BC = 8 centimetres
- Angle BAC = 150°

Given that $\sin 150^\circ = \frac{1}{2}$, show that $\sin B = \frac{1}{4}$.

Q11. Simplify:

a. $\frac{5k^3}{12} \div \frac{k}{8}$

b. $\frac{x+3}{8g^{-2}} \times \frac{6g}{x^2-9}$

c. $\frac{2x+4}{5w} \div \frac{8}{7w^{-2}}$

Q12. Expand and simplify: a. $x(x + 4)^2$

b. $3 - 2(x + 1)(x - 2)$