

S4 Homework – Week 25

Q1. Fully Factorise:

a.  $49d^2 - 36$

b.  $6x^2 + 7x - 3$

c.  $3x^3 - x^2 - 4x$

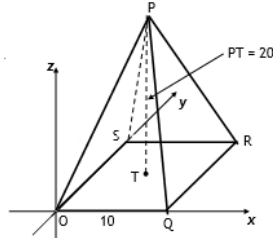
Q2. State the co-ordinates of the turning point and state its nature:

a.  $y = 2(x + 1)^2 - 3$

b.  $y = (x - 6)^2 + 10$

c.  $y = 4 - 3(x + 2)^2$

Q3. From the diagram below, find the co-ordinates of P.



Q4. Write the following in the form  $y = (x + a)^2 + b$

a.  $y = x^2 + 10x + 30$

b.  $y = x^2 - 8x + 6$

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

Q5. Find the **perimeter** of a sector with an angle of  $45^\circ$  and a radius of 35cm.

Q6. a. Find the equation of the line joining the points (-2, 5) and (0, 9).

b. Does the point (1, 10) lie on the line?

Q7. Solve the following:

a.  $\frac{x}{5} + 3 = \frac{1}{2}$

b.  $\frac{4x}{3} - x = \frac{2}{7}$

c.  $\frac{x+6}{3} + \frac{1}{2} = \frac{x+5}{4}$

Q8. Simplify:

a.  $\frac{2}{x+4} - \frac{3}{x-3}$

b.  $\frac{24xy}{35z} \div \frac{20xy}{21z}$

c.  $\frac{4pq}{3a} \times \frac{6a^2}{5p^3}$

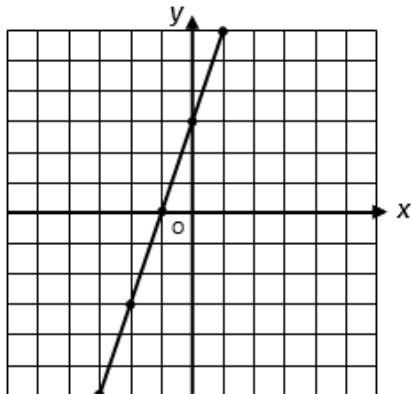
Q9. 3 kg of butter and 4 pints of milk costs £3.84.

5 kg of butter and 7 pints of milk costs £6.48.

Find the cost of a kg of butter and a single pint of milk.

Q10. Find the equations of the graphs below:

a.



b.

