

Starter

1. Expand the brackets and simplify

a. $4p(p - 9) + 6(p^2 - 5p)$

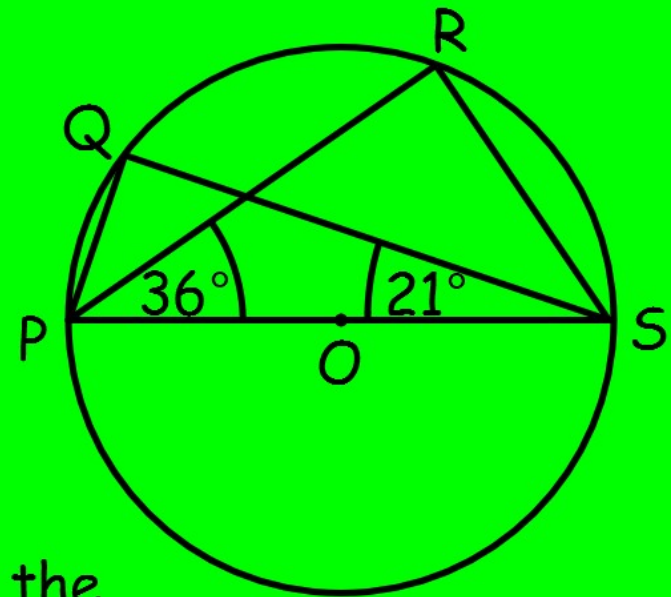
b. $8h^2 - (4h + 3)(3h - 1)$

2. Simplify

a. $\sqrt{125}$

b. $2\sqrt{5} + \sqrt{20} - \sqrt{45}$

3. Calculate the size of angle QPR in the diagram shown opposite.



4. The government passes legislation that requires fumes from a factory to halve by the year 2030.

The fumes are currently decreasing at a rate of 9.8% per annum.

Will the factory reach a safe level by the year 2030?

Starter

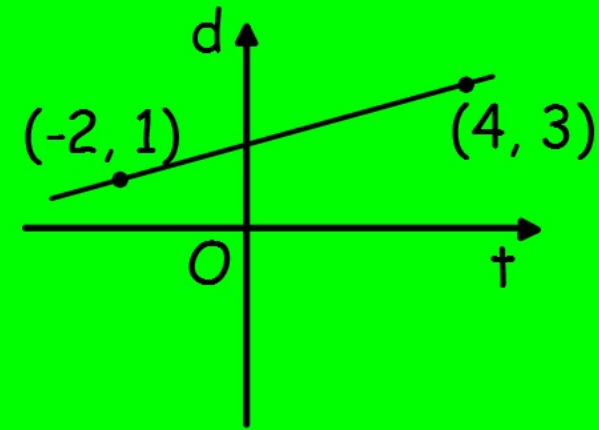
1. Simplify

a. $j^6 \times j^{-11}$

b. $k^{-8} \times (k^2)^3$

c. $u^2(u^{-\frac{1}{2}} + u)$

2. Find the equation of the straight line shown opposite.



3. Rationalise the denominator: $\frac{8}{\sqrt{11}}$

3. Which has the largest radius - a cylinder with a volume of $11,500\text{cm}^3$ and a height of 40cm or a sphere with volume $3,660\text{cm}^3$?

4. Find the point of intersection of $5x + 6y = 4$ and $2x - 9y = 13$.

Starter

1. Laura sells her car for £12,796 using Auto Trader.
She made a 20% loss.
How much did she pay for the car?

2. Express as a single fraction in its simplest form.

a. $\frac{4}{f-3} - \frac{f}{5}$, ($f \neq 3$)

b. $\frac{5p^2}{8} \div \frac{p}{2}$, ($p \neq 0$)

3. The golden boot is won by the player who scores the most goals in one English Premiership season.

The number of goals scored by the last 10 winners are shown below.

31, 26, 30, 20, 29, 19, 31, 20, 27, 25

- Find
- the median
 - the lower quartile
 - the interquartile range

Starter

1. Find the standard deviation of the data sample below.

5.3, 6.1, 3.8, 4.3

Give your answer correct to 1 decimal place.

2. Change the subject of the formula to w .

a. $d = 3w - k$

b. $y = 4w^2$

c. $p = 4 - \sqrt{fw}$

3. a. Find the equation of line l_1 which is parallel to $4y + x = 8$ which passes through the point $(-2, 3)$.
b. Hence find the x -intercept of line l_1 .

4. Simplify $\frac{3y^2 - 6y}{y^2 + y - 6}$