



National 5 - Home Ex 3
Remember to show ALL working

1. Expand and simplify

(a) $(5x + 1)(2x^2 - 3x + 5)$

(b) $\left(2x - \frac{4}{x}\right)^2$

2. Factorise

(a) $2m^2 - 18$

(b) $x^2 + 8x + 15$

(c) $6x^2 + x - 1$

3. Simplify

(a) $(-2a^2)^4$

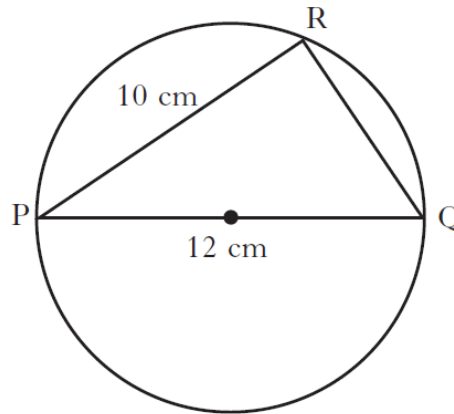
(b) $(5a^3 \times 2a^{-10}) \div 20a^4$

(c) $5x^{-\frac{1}{2}}(4x^6 + 3x^{\frac{3}{5}})$

4.

In the diagram,

- PQ is the diameter of the circle
- PQ = 12 centimetres
- PR = 10 centimetres.



Calculate the length of QR.

Give your answer as a surd in its simplest form.

5. A snail crawls 3 kilometres in 16 days. What is the average speed of the snail in metres per second? Give your answer **in scientific notation correct to 2 significant figures**.

6. The price for Paul's summer holiday is £894.40. The price includes a 4% booking fee. What is the price of his holiday without the booking fee?

7.

The function $f(x)$ is defined by $f(x) = \frac{2}{\sqrt{x}}$, $x > 0$.

Express $f(5)$ as a fraction with a rational denominator.