

# Fraction and Decimal Substitution with Powers and Roots: Exercise



1 Find the value of the following expressions when  $a = -0.5$ :

a  $a^2$

b  $2a^2$

c  $2a^2 + 5$

d  $(2a)^2 + 5$

e  $3a^2 + 2a$

f  $a^3 + 2a^2$

g  $(4a)^5 - 2a^2$

h  $\frac{8a^6}{4a^2}$

2 Given that  $x = \frac{2}{5}$  and  $y = -\frac{2}{3}$ , find the value of  $25x^2 - 27y^3$ .

3 You are told that  $p = -0.5$ ,  $q = \frac{1}{8}$  and  $r = 0.16$ . Find the value of the following expressions.

Question a-e are **non-calculator**. Use a calculator for questions f-h and give your answers to 2 decimal places.

a  $\sqrt{r}$

b  $\sqrt[3]{q}$

c  $\sqrt[3]{pr}$

d  $\sqrt{p^2 - r}$

e  $5\sqrt{r}$

f  $\sqrt{qr} + p$

g  $3\sqrt{qr + p}$

h  $\sqrt[5]{10r - \frac{q}{p}}$

4 This formula can be used to calculate the displacement ( $s$  metres) of an object given its initial velocity ( $u$  m/s), time spent moving ( $t$  seconds) and acceleration ( $a$  m/s<sup>2</sup>):

$$s = ut + \frac{1}{2}at^2$$

Find the value of  $s$ , given that  $a = \frac{1}{50}$ ,  $u = 5.5$  and  $t = 2.5$ .