



Exercise 1D

BASIC LEVEL

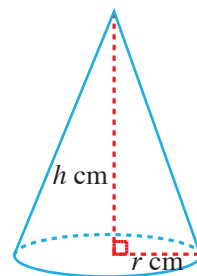
- If x is inversely proportional to y^3 and $x = 50$ when $y = 2$,
 - find the value of x when $y = 4$,
 - find an equation connecting x and y ,
 - calculate the value of y when $x = 3.2$.
- If z is inversely proportional to \sqrt{w} and $z = 9$ when $w = 9$,
 - find an equation connecting w and z ,
 - find the value of z when $w = 16$,
 - calculate the value of w when $z = 3$.
- The force of repulsion, F newtons (N), between two particles is inversely proportional to the square of the distance, d m, between the particles.
 - Write down a formula connecting F and d .
 - When the particles are a certain distance apart, the force of repulsion is 20 N. Find the force when the distance is halved.

INTERMEDIATE LEVEL

- For each of the following equations, state the two variables which are inversely proportional to each other and explain your answer.
 - $y = \frac{3}{x^2}$
 - $y = \frac{1}{\sqrt{x}}$
 - $y^2 = \frac{5}{x^3}$
 - $n = \frac{7}{m-1}$
 - $q = \frac{4}{(p+1)^2}$
- If z is inversely proportional to $\sqrt[3]{x}$ and $z = 5$ when $x = 64$, find the value of z when $x = 216$.
- If q^2 is inversely proportional to $p+3$ and $q = 5$ when $p = 2$, find the values of q when $p = 17$.
- Given that t is inversely proportional to s^3 , copy and complete the table.

s	1	2	4		
t	80			0.08	0.01

- For a fixed volume, the height, h cm, of a cone is inversely proportional to the square of the base radius, r cm. Cone A has a base radius of 6 cm and a height of 5 cm. The base radius of Cone B is 3 cm and the height of Cone C is 1.25 cm. If all the cones have the same volume, find
 - the height of Cone B,
 - the base radius of Cone C.



ADVANCED LEVEL

- If y is inversely proportional to $2x+1$ and the difference in the values of y when $x = 0.5$ and $x = 2$ is 0.9, find the value of y when $x = -0.25$.
- y is inversely proportional to x^2 and $y = b$ for a particular value of x . Find an expression in terms of b for y when this value of x is tripled.
- The force of attraction between two magnets is inversely proportional to the square of the distance between them. When the magnets are r cm apart, the force of attraction between them is F newtons (N). If the distance between the magnets is increased by 400%, the force of attraction between them becomes cF N. Find the value of c .