Revision – Direct and Inverse Proportionality

1.

q is inversely proportional to the square of t.

When $t = 4$, $q = 8.5$

(a) Find a formula for q in terms of t.

$q =$ ....
                                                                                     (3)

(b) Calculate the value of q when $t = 5$

....
                                                                                     (1)

2.

M is directly proportional to L^3.

When $L = 2$, $M = 160$

(a) Find a formula for M in terms of L.

(b)

Find the value of M when $L = 3$

....

(Total 4 marks)

3.

In a factory, chemical reactions are carried out in spherical containers.

The time, T minutes, the chemical reaction takes is directly proportional to the square of the radius, R cm, of the spherical container.

When $R = 120$, $T = 32$

(a) Find a formula for T in terms of R.

(b)

Find the value of T when $R = 150$

$T = $ ....

(Total 4 marks)

4.

h is inversely proportional to the square of *r*.

When $r = 5$, $h = 3.4$

Find the value of *h* when $r = 8$

$h =$ ....

5.

y is directly proportional to the square of *x*.

When $x = 3$, $y = 36$

Find the value of *y* when $x = 5$

....

6.

p is inversely proportional to *t*.

When $t = 4$, $p = 12$

Find the value of *p* when $t = 6$

7.

The intensity of the sound, I watts/m², received from a loudspeaker is inversely proportional to the square of the distance, *d* metres, from the loudspeaker.

When $d = 2$, $I = 30$

Work out the value of I when $d = 10$

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