N277 Direct and inverse proportion 2

Q1.

y is proportional to x^2.

When $x = 5$, $y = 100$

Work out the value of y when $x = 3$

$y =$ .....

(Total for question = 3 marks)

Q2.

D is directly proportional to x.

$D = 36$ when $x = 5$

Work out the value of D when $x = 8$

$D =$.....

(Total for Question is 2 marks)

Q3.

P is inversely proportional to the square root of m.

$P = 10$ when $m = \frac{1}{4}$

Work out the value of m when $P = 2$

.....

(Total for question = 3 marks)

Q4.

y is inversely proportional to x^3

$y = 44$ when $x = a$

Show that $y = 5.5$ when $x = 2a$

(Total for question = 3 marks)

Q5.

A pendulum of length L cm has time period T seconds.
T is directly proportional to the square root of L.

The length of the pendulum is increased by 40%.

Work out the percentage increase in the time period.

..... %

(Total for question is 3 marks)

Q6.

y is directly proportional to $\sqrt[3]{x}$

$y = 1\frac{1}{6}$ when $x = 8$

Find the value of y when $x = 64$

.....

(Total for question = 3 marks)

Q7.

y is inversely proportional to d^2
When $d = 10$, $y = 4$

d is directly proportional to x^2
When $x = 2$, $d = 24$

Find a formula for y in terms of x.
Give your answer in its simplest form.

.....

(Total for question = 5 marks)

Q8.

h is inversely proportional to p

p is directly proportional to $\sqrt{t}$

Given that $h = 10$ and $t = 144$ when $p = 6$
find a formula for h in terms of t

.....

(Total for question = 4 marks)

Q9.

The table shows pairs of values of x and y

x	5	6
y	400	576

(i) Tick the correct statement below.

$y \propto x$ .....

$y \propto x^2$ .....

$y \propto x^3$ .....

(ii) Write a formula for y in terms of x

.....

(Total for question = 4 marks)

Q10.

y is inversely proportional to the square of x.

$y = 8$ when $x = 2.5$

Find the negative value of x when $y = \frac{8}{9}$

.....

(Total for question = 3 marks)

Q11.

The table shows a set of values for x and y.

x	1	2	3	4
y	9	$2\frac{1}{4}$	1	$\frac{9}{16}$

y is inversely proportional to the square of x.

(a) Find an equation for y in terms of x.

.....

(2)

(b) Find the positive value of x when $y = 16$

.....

(2)

(Total for question = 4 marks)