14 T is directly proportional to the cube of r

$T = 21.76$ when $r = 4$

(a) Find a formula for T in terms of r

.....

(3)

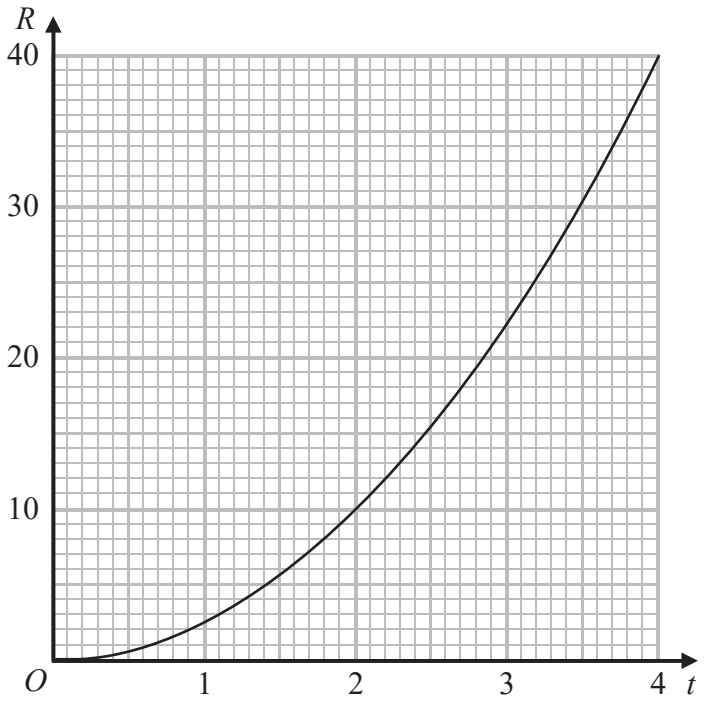
(b) Work out the value of T when $r = 6$

.....

(1)

(Total for Question 14 is 4 marks)

16 R is proportional to t^2
The graph shows the relationship between R and t for $0 \leqslant t \leqslant 4$



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

.....

(3)

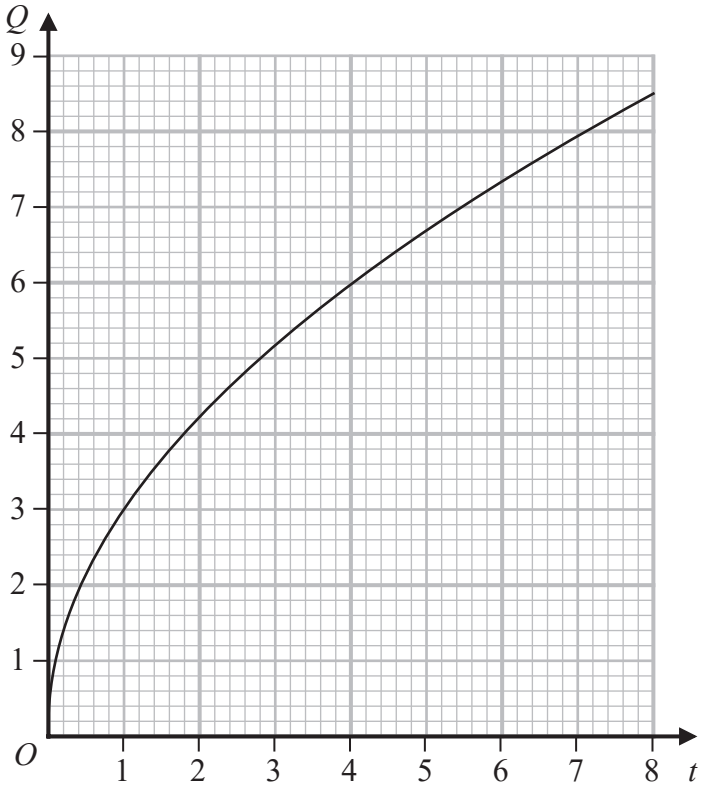
Given also that $R = \dfrac{8}{5x}$

(b) show that t is inversely proportional to $\sqrt{x}$ for $t > 0$

(2)

(Total for Question 16 is 5 marks)

16 Q is directly proportional to $\sqrt{t}$
The graph shows the relationship between Q and t for $0 < t < 8$



(a) Find a formula for Q in terms of t

.....

(3)

Q is increased by 20%

(b) Find the percentage increase in t

.....%

(2)

(Total for Question 16 is 5 marks)

17 M varies directly as the cube of h
$M = 4$ when $h = 0.5$

Find the value of h when $M = 500$

.....

(Total for Question 17 is 4 marks)

17 Q is directly proportional to the square root of d

$Q = 4.5$ when $d = 324$

Find a formula for Q in terms of d

.....

(Total for Question 17 is 3 marks)

17 y is directly proportional to the cube of x
$y = 20h$ when $x = h$ $(h \neq 0)$

(a) Find a formula for y in terms of x and h

$y =$.....

(3)

(b) Find x in terms of h when $y = 67.5h$
Give your answer in its simplest form.

$x =$.....

(2)

(Total for Question 17 is 5 marks)

19 P is inversely proportional to y^2
When $y = 4$, $P = a$

(a) Find a formula for P in terms of y and a

.....

(3)

Given also that y is directly proportional to $\sqrt{x}$
and when $x = a$, $P = 4a$

(b) find a formula for P in terms of x and a

.....

(3)

(Total for Question 19 is 6 marks)

20 T is inversely proportional to m^2

$T = 30$ when $m = 0.5$

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

.....

(3)

(b) Work out the value of T when $m = 0.1$

.....

(1)

(Total for Question 20 is 4 marks)

20 y is inversely proportional to $\sqrt{x}$
x is directly proportional to T^3

Given that $y = 8$ when $T = 25$

find the exact value of T when $y = 27$

$T =$ .....

(Total for Question 20 is 4 marks)