1 $V = \frac{k}{H}$ where k is a constant.

Which two statements are correct?

Tick two boxes.

[1 mark]

 ${\it V}$ is directly proportional to ${\it H}$



 ${\it V}$ is inversely proportional to ${\it H}$



V is directly proportional to $\frac{1}{H}$



V is inversely proportional to $\frac{\mathbf{1}}{H}$

2 P, Q and R have positive values.

P is directly proportional to the square of Q.

When P = 1.25, Q = 0.5

Q is inversely proportional to R.

When Q = 0.5, R = 6

Work out the value of R when P = 0.8

[5 marks]

$$\frac{P = kQ^2}{1.25 = k(0.5)^2}$$

$$\frac{k = \frac{1.25}{0.5^2} = 5}$$

$$0.5 = \frac{m}{6}$$

$$p = 5Q^2$$
, $Q = \frac{3}{R}$

$$\rho - 5\left(\frac{3}{\rho}\right)^2$$

$$P = 5\left(\frac{q}{R^2}\right) = \frac{45}{R^2}$$

$$0.8 < \frac{45}{R^2}$$
 $R^2 = \frac{45}{0.8} : 56.25$

3 L is directly proportional to D^2

L = 85 when D = 10

3 (a) Work out an equation connecting L and D.

[3 marks]

Answer
$$L = 0.850$$

3 (b) Work out the value of L when D=5

[2 marks]

4 (a) G is directly proportional to the square root of H.

$$G: H = 3: 2$$
 when $H = 16$

Work out G: H when H = 100

when
$$H=16$$
, $G=\frac{16}{2}\times 3=24$

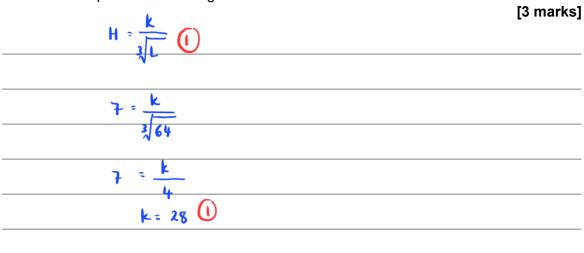
$$k = \frac{24}{4} = 6 \text{ ()}$$

Answer 3 : 5

 ${\bf 5}$ H is inversely proportional to the cube root of L.

$$H = 7$$
 when $L = 64$

5 (a) Work out an equation connecting H and L.



Answer _
$$H = \frac{28}{3\sqrt{L}}$$
 (1)

5 (b) Work out the value of H when L = 2744

$$H = \frac{28}{\sqrt[3]{2744}} \quad \text{(i)}$$

$$H =$$
 2

6 A chef has a tub of blueberries.

She wants to

use all the blueberries

put the same number of blueberries on each dessert.

$$D = \frac{k}{b}$$

D is the number of desserts.

b is the number of blueberries on each dessert.

6 (a) Complete the table.

[2 marks]

b	2	6	8 /0
D	120	40 /0	30

$$120 = \frac{k}{2}$$

$$D = \frac{240}{6}$$

$$30 = \frac{240}{b}$$

7 P, Q, and R have positive values.

 ${\it P}$ is directly proportional to ${\it Q}$

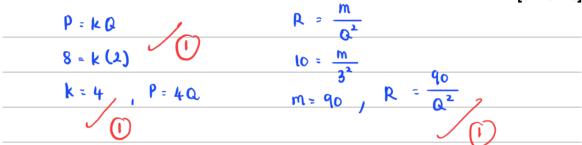
When P = 8, Q = 2

R is inversely proportional to Q^2

When R = 10, Q = 3

Work out the value of R when P = 0.5

[5 marks]



$$R = \frac{90}{0.125^2} = 5760$$

$$R =$$
 5760