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

Which **two** statements are correct?

Tick **two** boxes.

[1 mark]

- ☐ V is directly proportional to H
- ☑ V is inversely proportional to H
- ☑ V is directly proportional to $\frac{1}{H}$
- ☐ V is inversely proportional to $\frac{1}{H}$

(1)

2 Circle the equation where c is inversely proportional to d.

[1 mark]

$c = \frac{1}{2}d$ $\quad$ $c = \frac{2}{d}$ $\quad$ $c = -2d$ $\quad$ $c = -\frac{2}{d^2}$

3 An electric car uses 1 unit of electricity to travel 3 miles.

1 unit of electricity costs 50 pence.

Work out the cost of electricity, in pounds, to travel 270 miles.

[3 marks]

Unit of electricity used : $\frac{270 \text{ miles}}{3 \text{ miles}} = 90$ ✓1

Total costs : 90 × 50 pence ✓1

= £45

Answer £ 45 ✓1

4 (a) Leema buys 2 metres of linen at £8.50 per metre.

She also buys 5 metres of cotton.

The **total** cost is £38

What is the cost of **one** metre of cotton?

[4 marks]

Cost of linen : 2 × £8.50 = £17 ✓(1)

Cost of 5 metres of cotton : £38 − £17 ✓(1)

= £21

Cost of 1 metre of cotton : £21 ÷ 5 ✓(1)

= £4.20

Answer £ 4.20 ✓(1)

4 (b) Buttons cost 65p each.

The greatest number of buttons Leema can buy with £5 is 7

She says,

"The greatest number of buttons I can buy with £10 is 14 because £10 is double £5"

Is she correct?

Tick a box.

Yes ☐ No ☑

Show working to support your answer.

[2 marks]

£0·65 × 14 = £9·10 ✓(1)

£0·65 × 15 = £9·75

The highest number of buttons she can buy is 15 ✓(1)

5 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.

5 (a) Complete the table.

[2 marks]

b	2	6	8 ✓1
D	120	40 ✓1	30

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

$k = 240$

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

$= 40$

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

$b = 8$

6 Tins of beans are sold in shop A and shop B.

Shop A
1 tin 64p
Buy 4 tins for the price of 3 tins

Shop B
1 tin 62p
Pack of 3 tins £1.70
10% reduction in price on all **packs**

At which shop is it cheaper to buy 20 tins?

State how much cheaper.

[5 marks]

Shop A : 5 sets of 4 tins

$5 \times (3 \times 64p)$

$= 5 \times £1.92$

$= £9.60$ (1)

Shop B : 6 sets of pack of 3 tins and 2 sets of 1 tin

$6 \times (0.9 \times £1.70) + 2 (62p)$ (1)

$= £9.18 + £1.24$ (1)

$= £10.42$ (1)

$£10.42 - £9.60 = £0.82$

Shop A Cheaper by £0.82 (1)