

- 1 Three tins, A , B and C , each contain buttons.

Tin A contains x buttons.

Tin B contains 4 times the number of buttons that tin A contains.

Tin C contains 7 fewer buttons than tin A .

The total number of buttons in the three tins is 137

Work out the number of buttons in tin C .

$$A = x$$

$$B = 4x \quad (1)$$

$$C = x - 7$$

$$\text{Total} = A + B + C$$

$$= x + 4x + (x - 7) = 137 \quad (1)$$

$$= 6x = 137 + 7$$

$$6x = 144$$

$$x = \frac{144}{6} = 24 \quad (1)$$

$$C = 24 - 7$$

$$= 17 \quad (1)$$

17

(Total for Question 1 is 4 marks)

2 Mariana sells bags of bird food.

The bags that Mariana sold last week each contained 12 kg of seeds.

The bags that she is going to sell next week will each contain a mixture of nuts and seeds where for each bag

$$\text{weight of nuts : weight of seeds} = 4 : 5$$

→ Total proportion = 9

$$\text{seeds} = \frac{5}{9} \text{ of bag}$$

The total weight of the nuts and the seeds in each bag will be 19.35 kg

The weight of seeds in each bag that Mariana sells next week will be less than the weight of seeds in each bag that Mariana sold last week.

Work out this decrease as a percentage of the weight of seeds in each bag that Mariana sold last week.

Give your answer correct to one decimal place.

Weight of seeds in next week's bag :

$$\frac{5}{9} \times 19.35 = 10.75 \text{ kg} \quad (2)$$

$$\text{Decrease in percentage : } \frac{10.75 - 12}{12} \times 100\% \quad (1)$$

$$= -10.4\% \quad (1)$$

∴ decrease of 10.4 % from last week

10.4 %

(Total for Question 2 is 4 marks)

- 3 In a box, there are only green sweets, orange sweets and yellow sweets.

There are 280 sweets in the box so that

the number of green sweets : the number of orange sweets = 2 : 3
and

the number of orange sweets : the number of yellow sweets = 1 : 5

Work out how many green sweets there are in the box.

$$G : O : Y$$

$$2 \quad 3$$

$$1 \times 3 \quad 5 \times 3$$

$$2 : 3 : 15 \quad (1)$$

$$\frac{2}{2+3+15} \times 280$$

$$= \frac{2}{20} \times \overset{14}{\cancel{280}} \quad (1)$$

$$= 28 \quad (1)$$

28

(Total for Question 3 is 3 marks)