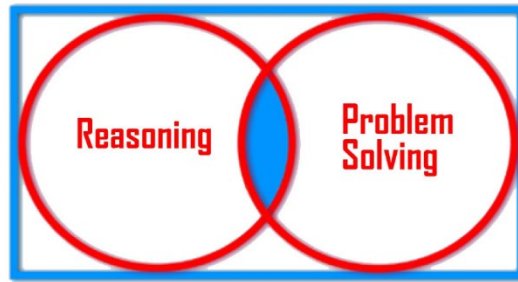




## GCSE Foundation (5 – 1)



[fluidmaths.co.uk](http://fluidmaths.co.uk)

### Mathematical Reasoning Questions (Proportions and Best Buy) – Set 1 Solutions

**The questions are repeated here for your convenience**

<p><b>1</b></p>	<p>Answer <b>True</b> or <b>False</b> to the following statements</p> <p>a) If <math>x:y = 5:6</math>, then <math>\frac{x}{y} = \frac{5}{6}</math>    <b>True</b>                      <b>[1mark]</b></p> <p>b) If <math>x:y = 1:2</math>, then <math>x</math> is 50% of <math>y</math>    <b>True</b>                      <b>[1mark]</b></p> <p>c) If <math>x:y = 1:2</math>, then <math>y</math> is 50% of <math>x</math>    <b>False</b>                      <b>[1mark]</b></p>
<p><b>2</b></p> 	<p>A 5 kg bag of potatoes cost £2.95  A 4.5 kg bag of the same potatoes cost £2.79  Ella say's 'since 5 kg is bigger than 4.5 kg, it must give better value for money'  Is Ella right? Show how to decide</p> <p><b><u>Solution</u></b>  For the 5 kg bag:  <math>2.95 \div 5 = 0.59</math> per kilo  For the 4.5 kg bag:  <math>2.79 \div 4.5 = 0.62</math> per kilo  Ella is right, the 5 kg bag is better value since it is cheaper per kilo  <b>[2marks]</b></p>
<p><b>3</b></p> 	<p>A litre of petrol cost £1.15  The average consumption of a model of Nissan is 4.5 litres per 15km. How much petrol will it cost for a 150km journey using this model of Nissan?</p> <p>a) £11.50  b) £77.63  c) £51.80  d) £45.00</p> <p><b><u>Solution</u></b>  Cost of 4.5 litres of Petrol = <math>1.15 \times 4.5 = £5.18</math>  <math>150 \div 15 = 10</math>  Cost of the 150 km journey = <math>10 \times 5.18 = £51.80</math>  Correct Answer: C                      <b>[1mark]</b></p>

4 Bennie cycles 900 m in 5 minutes.  
Which calculation below will give the time it takes Bennie to cycle 400 m? Choose one answer

a)  $\frac{200}{9}$

b)  $\frac{20}{9}$

c)  $\frac{90}{200}$

d)  $\frac{9}{20}$

**Solution**

$$\frac{t}{400} = \frac{5}{900}$$
$$t = \frac{400 \times 5}{900} = \frac{20}{9}$$

Correct Answer: B [1mark]

5 The scale on a map show 5 cm : 25000 m  
Two towns are 15000 m apart in real life.  
How far apart are they on the map?

a) 25 cm

b) 15 cm

c) 6 cm

d) 3 cm

**Solution**

$$\frac{5}{25000} = \frac{x}{15000}$$
$$x = \frac{5 \times 15000}{25000}$$
$$= \frac{5 \times 15}{25} = 3$$

Correct Answer: D [1mark]

6 Zayn is 150 cm tall this year. The ratio of his height last year to his new height is 31:40. Identify the calculation to find Zayn's height last year

- a)  $\frac{31}{40} \times 50$
- b)  $\frac{31}{4} \times 15$
- c)  $\frac{40}{31} \times 150$
- d)  $\frac{6000}{31}$

**Solution**

$$150 : x = 31 : 40$$

$$\frac{150}{x} = \frac{31}{40}$$

$$x = \frac{40}{31} \times 150$$

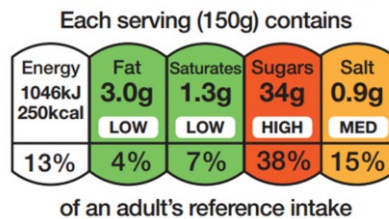
Correct Answer: C [1mark]

7 Completed table

Fraction	Ratio	Percentage
$\frac{2}{5}$	<b>2:5</b>	40%
<b><math>\frac{7}{4} = 1\frac{3}{4}</math></b>	7:4	<b>175</b>
$\frac{13}{20}$	<b>13:20</b>	65%

[2marks]

8 This is the label on a food packaging



What is the amount of sugar in 1800g of this food? Choose one answer

- a) 400
- b) 408
- c) 280.3
- d) 793.9

**Solution**

$$150 : 34 = 1800 : s$$

$$\frac{150}{34} = \frac{1800}{s}$$

$$s = \frac{1800 \times 34}{150} = 408$$

Correct Answer: B [1mark]

**9** From the food label in **Question 8 above** what percentage of salt will be in 80g of this food? Show all your workings

**Solution**

$$150:15 = 80:x$$

$$\frac{15}{150} = \frac{x}{80}$$

$$x = \frac{15 \times 80}{150} = 8$$

There will be 8% of salt in 80g of the food **[1mark]**

**10** X is directly proportional to Y  
A table of some values for X and Y is shown below

X	A	25	30
Y	25	30	B

The value of A + B will be closest to

Choose one answer

a) 57

b) 60

c) 55

d) 50

**Solution**

$$30 \div 25 = 1.2$$

$$A = 25 \div 1.2 = 20.83$$

$$B = 30 \times 1.2 = 36$$

$$20.83 + 36 = 56.83$$

Correct Answer: A **[1mark]**