

R15b Ratio Sharing more than one ratio

OCR

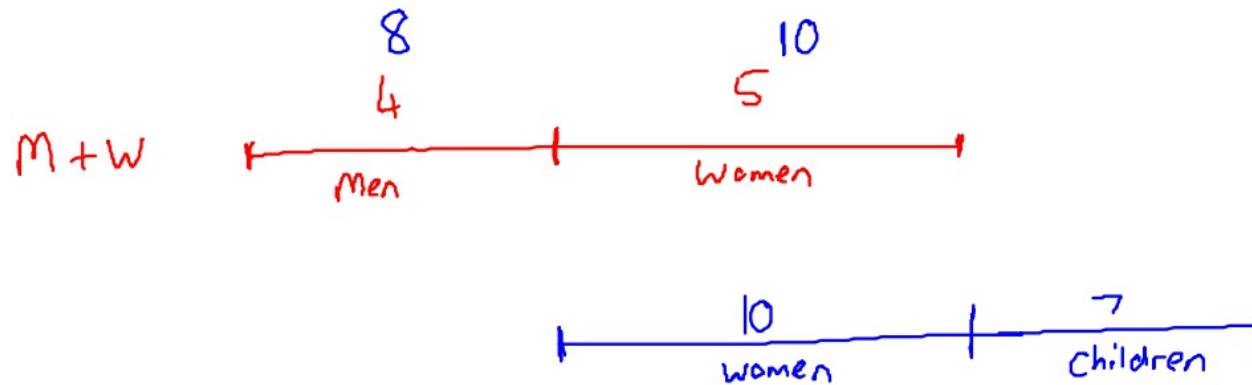
- 20** There is a total of 250 men, women and children on a train.
The ratio of men to women is 4 : 5.
The ratio of women to children is 10 : 7.

How many men are on the train?

..... **[4]**

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 The ratio of men to women is 4 : 5.
 The ratio of women to children is 10 : 7.

How many men are on the train?



$$M : W : C$$

$$8 : 10 : 7$$

$$250 \text{ people} = 25 \text{ parts}$$

$$10 \text{ people} = 1 \text{ part}$$

$$80 \text{ people} = 8 \text{ parts}$$

$$80 \text{ men} \quad [4]$$

- 18** A box contains only red, blue and green pens.
The ratio of red pens to blue pens is 5 : 9.
The ratio of blue pens to green pens is 1 : 4.

Calculate the percentage of pens that are blue.

..... % **[4]**

18 A box contains only red, blue and green pens.

R15B The ratio of red pens to blue pens is 5 : 9.

The ratio of blue pens to green pens is 1 : 4.

Calculate the percentage of pens that are blue.

R : B : G

5 : 9 :

: 1 : 4

5 : 9 : 36 $\leftarrow \times 9$

R : B : G

5 : 9 : 36

$$\frac{9}{50} = 0.18 = 18\%$$

..... 18 ✓ % [4]

11 Some biscuits contain only three ingredients: flour, butter and sugar.

R15a

- The ratio of flour to butter is 5 : 4.

R15b

- The ratio of butter to sugar is 2 : 1.
- The total weight of the flour, butter and sugar is 770g.

Work out the weight of each of the ingredients.

Flour g

Butter g

Sugar g [4]

11 Some biscuits contain only three ingredients: flour, butter and sugar.

R15a

- The ratio of flour to butter is 5 : 4.

R15b

- The ratio of butter to sugar is 2 : 1.
- The total weight of the flour, butter and sugar is 770g.

Work out the weight of each of the ingredients.

$$\begin{array}{r}
 F : B : S \\
 5 : 4 : 1 \\
 \hline
 5 : 4 : 2
 \end{array}
 \quad \begin{array}{l}
 \text{↙} \\
 \text{↘} \\
 \times 2
 \end{array}$$

$$11 \overline{) 770}$$

$$770g = 11 \text{ parts}$$

$$70g = 1 \text{ part} \quad \leftarrow \div 11$$

$$70 \times 5 = 350$$

$$\begin{array}{r}
 F : B : S \\
 5 : 4 : 2 \\
 350g \quad 280g \quad 140g
 \end{array}$$

Flour 350 g

Butter 280 g

Sugar 140 g [4] ✓

- 6 In a box of mixed nuts, the total number of almonds, cashews and peanuts is 1025.
The ratio of almonds to cashews is 1 : 3.
The ratio of cashews to peanuts is 5 : 7.

Calculate the number of cashews in the box.

R15a

R15b

..... [4]

- 6 In a box of mixed nuts, the total number of almonds, cashews and peanuts is 1025.
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R15a

R15b

$$\begin{array}{l} A : C : P \\ 1 : 3 \\ \quad 5 : 7 \\ \hline 5 : 15 : 21 \end{array}$$

(Handwritten notes: A red arrow labeled 'x5' points from the first ratio to the second. A red arrow labeled 'x3' points from the second ratio to the final ratio. The number 15 in the final ratio is circled in red.)

$$1025 = 41 \text{ parts}$$

$$\begin{array}{l} 25 = 1 \text{ part} \\ 375 = 15 \text{ parts} \end{array}$$

(Handwritten notes: A red arrow labeled 'x15' points from the first equation to the second. A red arrow labeled 'x15' points from the second equation to the right.)

375 ✓

Edexcel

22 There are only blue pens, green pens and red pens in a box.

The ratio of the number of blue pens to the number of green pens is 2 : 5

The ratio of the number of green pens to the number of red pens is 4 : 1

There are less than 100 pens in the box.

What is the greatest possible number of red pens in the box?

.....

(Total for Question 22 is 3 marks)

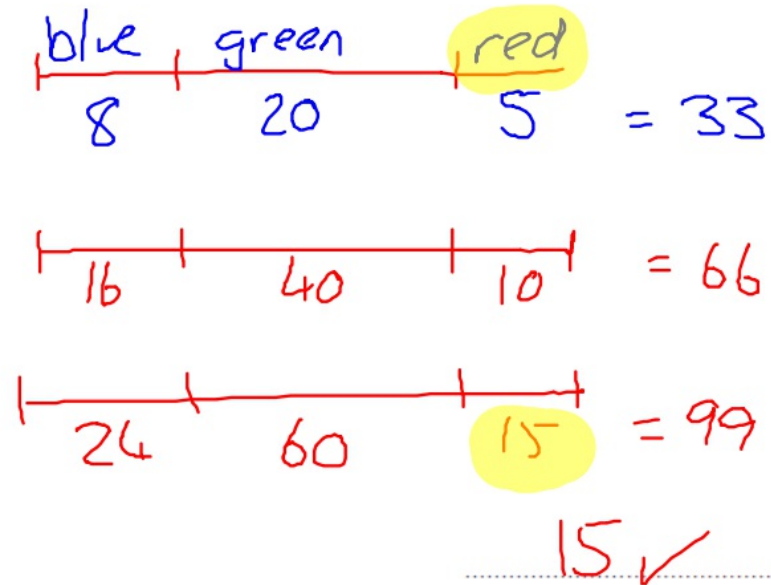
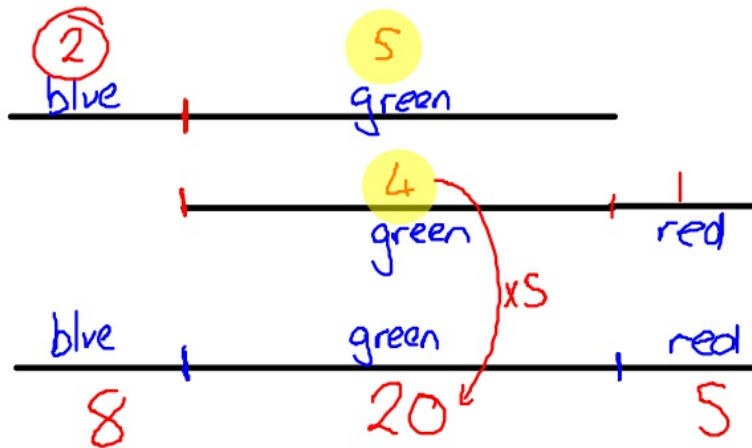
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There are less than 100 pens in the box.

What is the greatest possible number of red pens in the box?



(Total for Question 22 is 3 marks)

20 In a village

the number of houses and the number of flats are in the ratio 7 : 4

the number of flats and the number of bungalows are in the ratio 8 : 5

There are 50 bungalows in the village.

How many houses are there in the village?

.....
(Total for Question 20 is 3 marks)

20 In a village

R15b

the number of houses and the number of flats are in the ratio 7 : 4
 the number of flats and the number of bungalows are in the ratio 8 : 5

There are 50 bungalows in the village.

How many houses are there in the village?

50 bung = 5 parts
 10 bung = 1 part

$$\begin{array}{r}
 h : f : b \\
 7 : 4 : 5 \\
 \hline
 14 : 8 : 5 \\
 \hline
 140 \quad 80 \quad 50
 \end{array}$$

140 ✓

(Total for Question is 3 marks)

12 The points A , B , C and D lie in order on a straight line.

$$AB:BD = 1:5$$

$$AC:CD = 7:11$$

Work out $AB:BC:CD$

..... : :

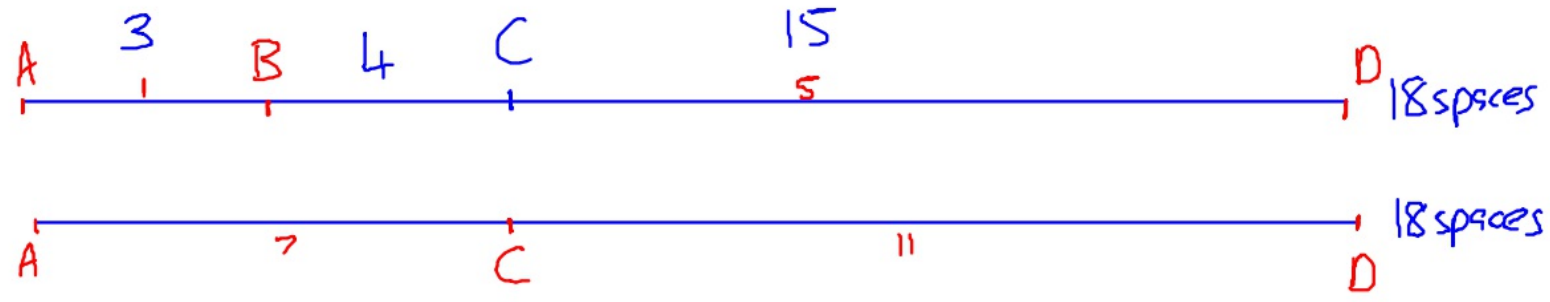
(Total for Question 12 is 3 marks)

12 The points A , B , C and D lie in order on a straight line.

$$AB:BD = 1:5 \checkmark \quad \begin{matrix} \xrightarrow{\times 3} \\ 6 \text{ spaces} \end{matrix} \quad (18 \text{ spaces})$$
$$AC:CD = 7:11 = 18 \text{ spaces}$$

3 4 11

Work out $AB:BC:CD$



..... 3 : 4 : 11

(Total for Question 12 is 3 marks)

AQA

16

$$a : b = 1 : 6$$

$$a : c = 3 : 1$$

R13

R15b

How many times bigger is b than c ?

[2 marks]

Answer _____

16 $a : b = 1 : 6$

$a : c = 3 : 1$

R13

R15b

How many times bigger is b than c ?

[2 marks]

$a : b : c$

1	:	b	:	c
3	:		:	1
3	:	18	:	1

Handwritten annotations: A large bracket on the left labeled "x3" spans from the first row to the third row. A red arrow labeled "no change" points from the "3" in the second row to the "3" in the third row. A red arrow labeled "Answer" points to the "18" in the third row. A large bracket on the right labeled "x3" spans from the second row to the third row.

18 times bigger

13 $e:f = 2:3$ and $f:g = 5:4$

Work out $e:g$

11

Give your answer in its simplest form.

[3 marks]

Answer _____ : _____

13

$$e:f = 2:3 \quad \text{and} \quad f:g = 5:4$$

Work out $e:g$

n1:

Give your answer in its simplest form.

[3 marks]

$$\begin{array}{ccc} \underline{e} & : & f & : & \underline{g} \\ 2 & : & 3 & & \\ & & 5 & : & 4 \\ \hline \underline{10} & : & 15 & : & \underline{12} \end{array}$$

$\times 5$ (curved arrow from 2 to 10)
 $\times 3$ (curved arrow from 4 to 12)

$$10 : 12$$

Answer 5 : 6