

Name: _____

GCSE (1 – 9)

Sharing Ratio

Instructions

- Use **black** ink or ball-point pen.
- Answer all questions.
- Answer the questions in the spaces provided
– *there may be more space than you need.*
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all your working out.**

Information

- The marks for each question are shown in brackets
– *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end

- 1 Will and Olly share £80 in the ratio 3 : 2

Work out how much each of them get.

$$\boxed{16} \quad \boxed{16} \quad \boxed{16} : \boxed{16} \quad \boxed{16}$$

$$80 \div 5 = 16$$

$$3 \times 16 = 48$$

$$2 \times 16 = 32$$

Will £ 48

Olly £ 32

(Total for Question 1 is 3 marks)

- 2 Molly, Paige and Demi share 42 sweets in the ratio 3 : 2 : 1

Work out the number of sweets that each of them receives.

molly *Paige* *Demi*

$$\boxed{7} \quad \boxed{7} \quad \boxed{7} : \boxed{7} \quad \boxed{7} : \boxed{7}$$

$$42 \div 6 = 7$$

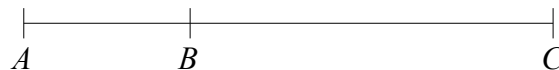
Molly 21 sweets

Paige 14 sweets

Demi 7 sweets

(Total for Question 2 is 3 marks)

- 3 ABC is a straight line.



The length of BC is three times the length of AB .

$AC = 80$ metres.

Work out the length BC .

$$AB : BC$$

$$1 : 3$$

$$80 \div 4 = 20$$

$$\boxed{20} : \boxed{20} \quad \boxed{20} \quad \boxed{20}$$

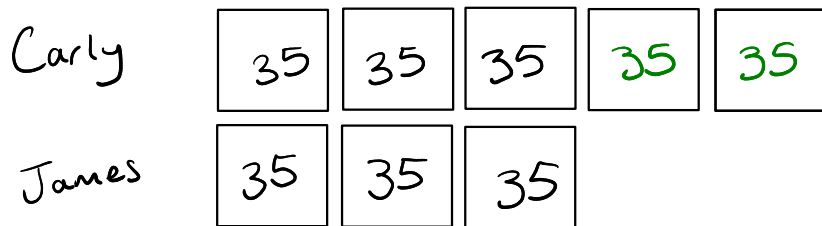
$$20 : 60$$

60 metres

(Total for Question 3 is 3 marks)

- 4 Carly and James share some money in the ratio 5 : 3
Carly gets £70 more than James.

Work out how much money James gets.



$$70 \div 2 = 35$$

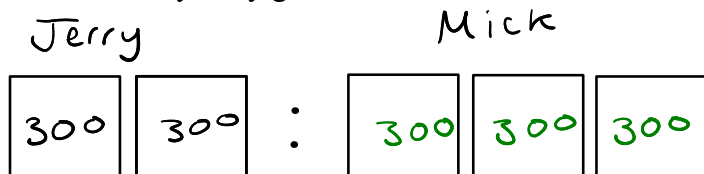
$$3 \times 35 = 105$$

$$\pounds 105$$

(Total for Question 4 is 3 marks)

- 5 Jerry and Mick share some money in the ratio 2 : 3
Mick gets £900

Work out how much money Jerry gets.



$$900$$

$$900 \div 3 = 300$$

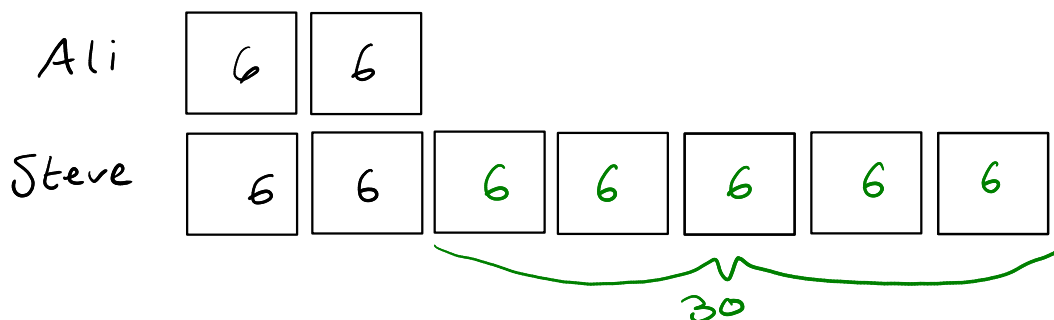
$$2 \times 300 = 600$$

$$\pounds 600$$

(Total for Question 5 is 3 marks)

- 6 Ali and Steve share some sweets in the ratio 2 : 7
Steve gets 30 more sweets than Ali.

Work out how many sweets Steve gets.



$$30 \div 5 = 6$$

$$7 \times 6 = 42$$

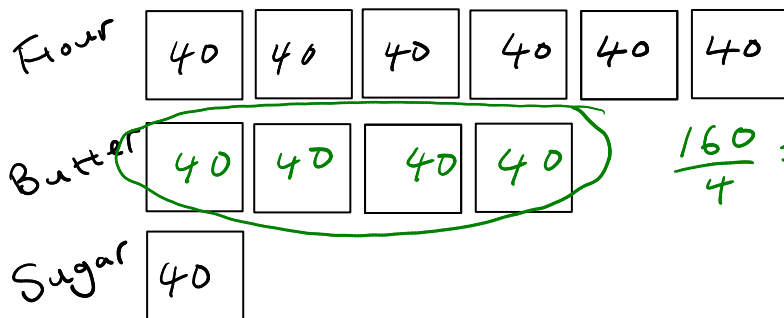
$$42$$

(Total for Question 6 is 3 marks)

- 7 Dave is making cookies.
He mixes flour, butter and sugar in the ratio 6 : 4 : 1

Dave uses 160 grams of butter.

Work out how much flour and sugar Dave uses.



$$6 \times 40 = 240$$

$$\frac{160}{4} = 40$$

flour 240 grams

sugar 40 grams

(Total for Question 7 is 3 marks)

- 8 Alvin and Simon shared £540 in the ratio 4 : 5

Alvin gave half of his share to Theo.

Simon gave a tenth of his share to Theo.

What fraction of the £540 did Theo receive?

$$\frac{540}{9} = 60$$

$$\begin{aligned} A : S \\ 4 \times 60 : 5 \times 60 \\ 240 : 300 \end{aligned}$$

$$\frac{150}{540} = \frac{15}{54}$$

$$= \frac{5}{18}$$

$$\frac{1}{2} \times 240 = 120$$

$$\frac{1}{10} \times 300 = 30$$

$$\text{Theo gets } 120 + 30 = 150$$

$$\frac{5}{18}$$

(Total for Question 8 is 3 marks)

- 9 ABC is a straight line.



The length of BC is four times the length of AB .

$BC = 100$ metres.

Work out the length AC .

$$AB : BC$$

$$1 : 4$$

$$25 : 100$$

$$100 \div 4 = 25$$

$$125$$

metres

(Total for Question 9 is 3 marks)

- 10 Bob is going to make some orange paint.
He needs to mix red paint, yellow paint and white paint in the ratio 5 : 4 : 1

Bob wants to make 750 ml of orange paint.

Bob has

400 ml of red paint
300 ml of yellow paint
200 ml of white paint

$$\frac{750}{10} = 75$$

Does Bob have enough red paint, yellow paint and white paint to make the orange paint?
You must show all your working.

$$\boxed{75} \boxed{75} \boxed{75} \boxed{75} \boxed{75} : \boxed{75} \boxed{75} \boxed{75} \boxed{75} : \boxed{75}$$

$$\begin{array}{ccc} 375 & : & 300 & : & 75 \\ \checkmark & & \checkmark & & \checkmark \\ 375 < 400 & & 300 = 300 & & 75 < 200 \end{array}$$

(Total for Question 10 is 4 marks)

- 11 Megan is going to make a drink using the instructions below.

Mix 2 parts of fruit juice
with 5 parts of sparkling water

Megan has 180 ml of fruit juice and 400 ml of sparkling water.

What is the greatest amount of the drink Megan can make?

with all
fruit juice

$$\boxed{90} \boxed{90} : \boxed{90} \boxed{90} \boxed{90} \boxed{90} \boxed{90}$$

$$\frac{180}{2} = 90 \quad 180 : 450 \quad (\text{not enough water})$$

with all
the water

$$\boxed{80} \boxed{80} : \boxed{80} \boxed{80} \boxed{80} \boxed{80} \boxed{80}$$

$$\frac{400}{5} = 80$$

$$160 : 400$$

$$160 + 400$$

$$560 \text{ ml}$$

(Total for Question 11 is 3 marks)

- 12 In a bag there are only red counters, blue counters and white counters.
A counter is taken at random from the bag.

The table shows the probability of getting a red counter.

Colour	Red	Blue	White
Probability	0.35	0.26	0.39

the number of blue counters : the number of white counters = 2 : 3

Complete the table.

$$1 - 0.35 = 0.65$$

$$0.65 \div 5 = 0.13 \quad (\text{each part})$$

$$\begin{aligned} &\text{Blue : white} \\ &2 \times 0.13 : 3 \times 0.13 \\ &0.26 : 0.39 \end{aligned}$$

(Total for Question 12 is 4 marks)

- 13 Al, Tom and Joe share €3000.

The ratio of the amount Al gets to the amount Tom gets is in the ratio 5 : 4
Joe gets 1.5 times the amount Tom gets.

$$4 \times 1.5 = 6$$

Work out the amount of money that Tom gets.

$$\begin{aligned} &\text{Al : Tom : Joe} \\ &5 : 4 : 6 \end{aligned}$$

$$5 + 4 + 6 = 15 \quad (15 \text{ parts})$$

$$\frac{3000}{15} = 200$$

$$1000 : 800 : 1200$$

$$\text{€ } 800$$

(Total for Question 13 is 4 marks)

- 14 Harry and Gary have a total of 300 stickers.
The ratio of the number of stickers Harry has to the ratio of the number of stickers Gary has is in the ratio 7 : 3 10 parts

Harry gives Gary some stickers.

The ratio of the number of stickers Harry has to the ratio of the number of stickers Gary has is now in the ratio 8 : 7 15 parts

Work out how many stickers Harry gives to Gary.
You must show all your working.

$$\frac{300}{10} = 30$$

$$7 \times 30 : 3 \times 30$$

$$210 : 90$$

$$\frac{300}{15} = 20$$

$$8 \times 20 : 7 \times 20$$

$$160 : 140$$

$$210 - 160 = \underline{50}$$

50

(Total for Question 14 is 4 marks)

15 A shop sells small chocolate bars and large chocolate bars.

There are

small chocolate bars are sold in packs of 4

large chocolate bars are sold in packs of 9

On one day

the number of packs of : the number of packs of = 5 : 2
small chocolate bars sold : large chocolate bars sold $\times_4 \quad \times_9$

A total of 190 chocolate bars were sold.

Work out the number of small chocolate bars sold.

Ratio of bars sold :

Small : Large

$5 \times 4 : 2 \times 9$

$20 : 18$

(38 parts)

$$\frac{190}{38} = 5$$

$$20 \times 5 : 18 \times 5$$

$$100 : 90$$

100

100

(Total for Question 15 is 4 marks)

- 16 Dermot has 240 counters.
The counters are either red, or blue, or yellow or green.

15% of the counters are red.

$\frac{2}{5}$ of the counters are blue

The ratio of yellow counters to green counters is 3:1

Work out the number of yellow counters Dermot has.

$$15\% \times 240 = 36$$

$$\frac{2}{5} \times 240 = 96$$

$$36 + 96 = 132$$

$$240 - 132 = 108$$

Yellow Green

27	27	27	:	27
----	----	----	---	----

$$\frac{108}{4} = 27$$

$$27 \times 3 = 81$$

81

(Total for Question 16 is 4 marks)

- 17 Daisy bakes 180 cakes.
She bakes only chocolate cakes, vanilla cakes, banana cakes and lemon cakes.

20% of the cakes are chocolate cakes.

$\frac{4}{9}$ of the cakes are vanilla cakes.

The ratio of banana cakes to lemon cakes is 3:5

Work out the number of lemon cakes Daisy has.

$$20\% \times 180 = 36$$

$$\frac{4}{9} \times 180 = 80$$

$$36 + 80 = 116$$

$$180 - 116 = 64$$

Banana : Lemon

$$3 : 5$$

$$64 \div 8 = 8$$

$$3 \times 8 : 5 \times 8$$

$$24 : 40$$

40

(Total for Question 17 is 4 marks)

- 18 Each month Angelina earns £1800 after tax.

Angelina saves 30% of her salary and she spends the rest.

spends
70%

the amount Angelina spends on rent : the amount she spends on other expenses = 4 : 5

Work out how much Angelina spends on rent.

$$70\% \times 1800 = 1260$$

Rent : other

140	140	140	140	:	140	140	140	140	140
-----	-----	-----	-----	---	-----	-----	-----	-----	-----

$$\frac{1260}{9} = 140$$

$$4 \times 140 = 560$$

£ 560

(Total for Question 18 is 3 marks)

- 19 There are only red counters and green counters in a bag.

number of red counters : number of green counters = 2 : 3

There are 28 red counters in the bag.

Work out the total number of counters in the bag.

Red : Green

14	14	:	14	14	14
----	----	---	----	----	----

$$\frac{28}{2} = 14$$

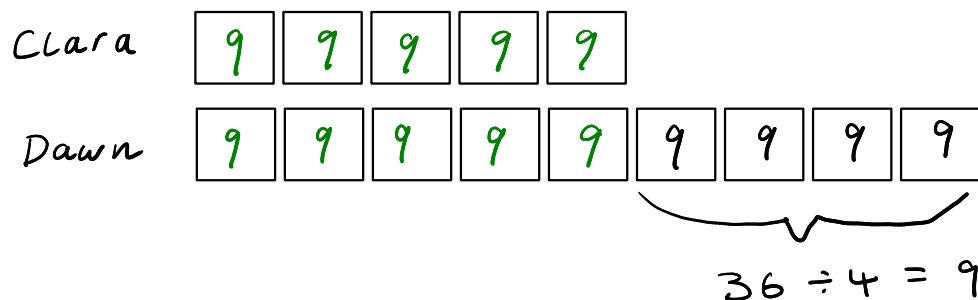
$$14 \times 5 = 70$$

70

(Total for Question 19 is 2 marks)

- 20 Clara and Dawn have some stamps in the ratio 5 : 9
Dawn has 36 more stamps than Clara.

Work out the number of stamps Clara has.



$$5 \times 9$$

45

(Total for Question 20 is 3 marks)

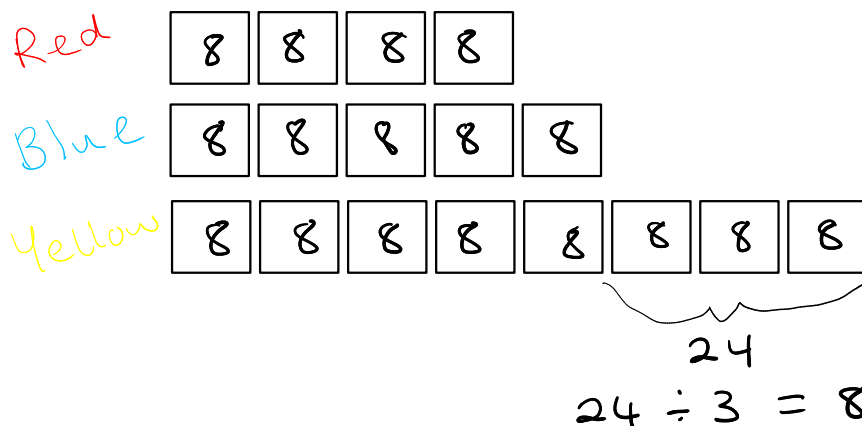
- 21 In a bag there are counters.
The counters are all either red or blue or yellow.

The number of red counters : The number of blue counters : The number of yellow counters = 4 : 5 : 8

17 parts

The number of yellow counters is 24 more than the numbers of blue counters.

Work out the total number of counters in the bag.



$$17 \times 8 = 136$$

136

(Total for Question 21 is 3 marks)

22 Cameron has some coins with a total value of 95 pence.

She has only 2 pence coins and 5 pence coins.

The ratio

$$\text{number of 2 pence coins} : \text{number of 5 pence coins} = 2 : 3$$

Work out how many 5 pence coins Cameron has.

value of 2p : value of 5p

$$2 \times 2 : 3 \times 5$$

$$4 : 15$$

$$\frac{95}{19} = 5$$

$$4 \times 5 : 15 \times 5$$

$$20 : 75$$

20p in 2ps

$$20 \div 2 = 10$$

75p in 5ps

$$75 \div 5 = 15$$

15

(Total for Question 22 is 4 marks)

23 Pens and pencils are sold in a shop.

8 pencils cost £1.92

The ratio of the cost of a pen to the cost of a pencil is 4 : 3

Work out the cost of 5 pens.

$$\frac{1.92}{8} = 24 \text{ p for each pencil}$$

Pen

8	8	8	8
---	---	---	---

$$24 \div 3 = 8$$

Pencil

8	8	8
---	---	---

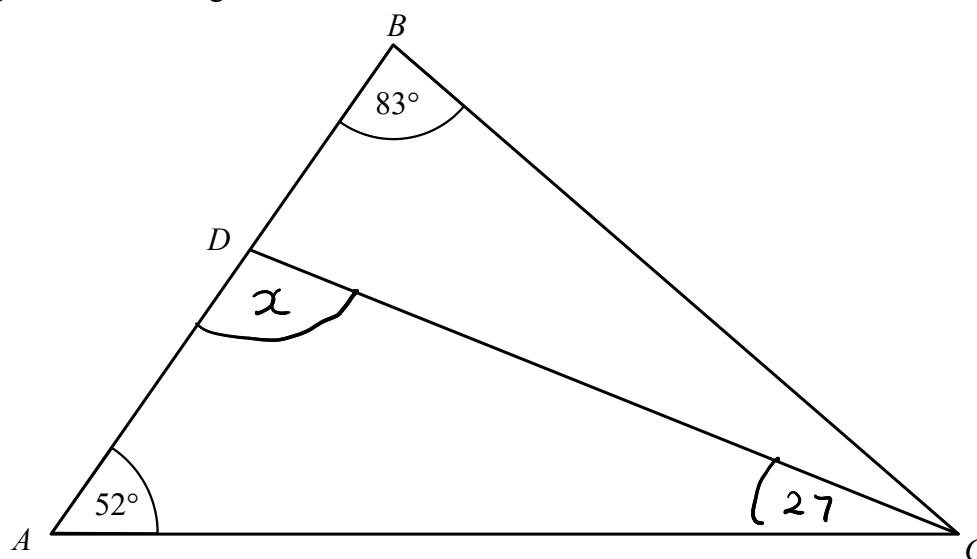
$$4 \times 8 = 32 \text{ p}$$

$$0.32 \times 5 = £1.60$$

£ 1.60

(Total for Question 23 is 4 marks)

24 The diagram shows triangle ABC .



ADB is a straight line.

the size of angle BCD : the size of angle $ACD = 2 : 3$

Work out the size of angle ADC .

$$\begin{aligned} \angle BCA &= 180 - 52 - 83 \\ &= 45^\circ \end{aligned}$$

$$\angle BCD \quad \boxed{9} \quad \boxed{9}$$

$$45 \div 5 = 9$$

$$\angle ACD \quad \boxed{9} \quad \boxed{9} \quad \boxed{9}$$

$$\begin{aligned} BCD : ACD \\ 18 : 27 \end{aligned}$$

$$\begin{aligned} 180 - 27 - 52 \\ = 101^\circ \end{aligned}$$

$$\underline{\hspace{2cm}} 101^\circ$$

(Total for Question 24 is 4 marks)