Name _____

Candidate Number _____

Room Number _____

WITHINGTON GIRLS' SCHOOL

JANUARY 2022

MATHEMATICS

TIME: 45 MINUTES

- Try to answer all the questions.

- Write your working and your answer in the space provided after each question.

- Answers should be written in their simplest form. For example, $\frac{1}{4}$ is simpler than $\frac{2}{8}$ and the mixed number $1\frac{1}{4}$ is simpler than $\frac{5}{4}$.

- If you cannot answer a question, leave it and go on to the next one.

- Use any time you have left to check your answers and go back to any questions you have left out.
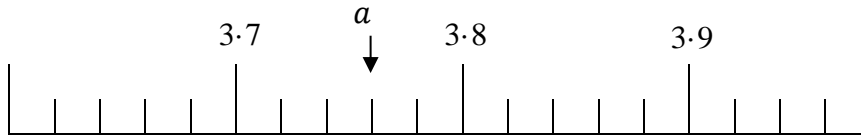
Q1-18		18
Q19-25		16
Q26-30		15
Q31		7
Q32		3
PAPER TOTAL		59
Checker's Initials		

CALCULATORS MUST NOT BE USED

1.	Work out $4 \cdot 2 \times 20$ _____	2.	Round 1392 to the nearest 10 1 1 _____

3.	Work out $1590 \div 6$ _____	4.	Work out $\frac{5}{8}$ of 48 1 1 _____

5.	Work out $400 \times \dfrac{9}{1000}$ _____	6.	Work out $8 \cdot 3 + 4 \cdot 9$ 1 1 _____

7.	What number goes in the box? $\boxed{} \times 12 = 7 \times 13 + 5$ 	8.	Work out $27 + 91 + 73 + 19$ 1 1 _____

9.	Work out 20% of 30% of 250? _____	10.	Work out $9 \div 1 \cdot 5$ 1 1 _____

| 11. | Circle the biggest fraction | | 1 |

$$\frac{5}{12} \qquad \frac{3}{8} \qquad \frac{7}{24}$$

| 12. | Work out $2\frac{3}{5} - 1\frac{1}{4}$ | | 1 |

_____

| 13. | What is the next term in the sequence | | 1 |

$$15, \ 25, \ 34, \ 42, \ 49, \ \dots\dots\dots$$

_____

| 14. | What number goes in the box? | | 1 |

$$0{\cdot}4 \times 200 = \boxed{} \div 4$$

| 15. | If eight cappuccino drinks cost £18. Find the cost of one drink. | | 1 |

£_____

| 16. | Work out the value of n in this division. | | 1 |

$$8 \ \overline{)4 \quad 3 \quad n}^{\ 5 \quad 4}$$

$n =$_____

| 17. | When n is increased by 20% the answer is 36.
What is the value of n? | | 1 |

$n =$_____

| 18. | What number is half way between $5{\cdot}4$ and $7{\cdot}2$? | | 1 |

_____

19. Find the numbers indicated by the arrows on the scales below.

(a)

                                a

           3·7   3·8   3·9

$a =$ _____

(b)

                                          b
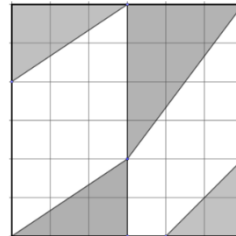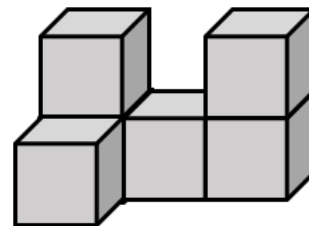
          5·8   6·0   6·2

$b =$ _____
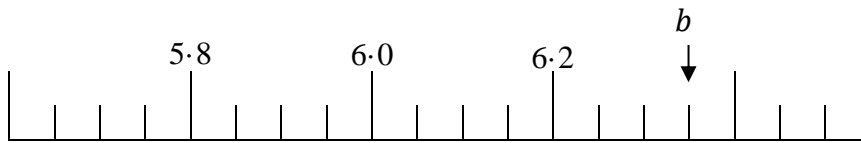
20. What fraction of the grid is shaded?

_____

21. Anisha uses a £20 note to buy 3 cinema tickets.
She gets 95 pence change.
How much did each cinema ticket cost?

£_____

22. The following shape is made from 2 cm cubes.
What is the total volume of the shape?

Volume = _____ cm³

23. Cats have 5 claws on each of their front feet and 4 claws on each of their rear feet.
Rosie is a vet. It takes her 4 seconds to cut a cat claw.
How long will it take her to cut the claws of 25 cats? Give your answer in minutes.

1

1

1

_____ minutes

24. Grace has a combination lock.

The code is made up of 4 **different** digits *a b c d* chosen from the numbers 1 to 9.

Grace used the following rules to make her code:
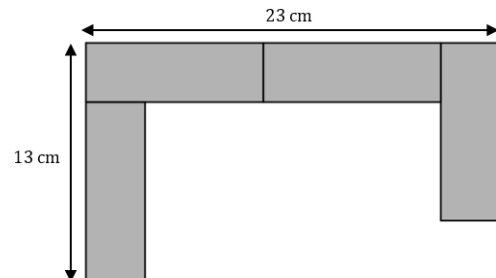
- *a* is a multiple of 4
- *b* is a square number
- *c* is odd
- *d* is a multiple of 3

(a) What is the biggest 4-digit code Grace could make?

1

_____

(b) What is the smallest 4-digit code Grace could make?

1

_____

25. A pattern is made using identical rectangles, as shown. What is the length (long side) and width (short side) of the rectangle?

23 cm
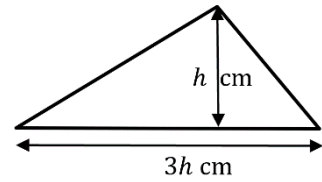
13 cm

1

1

1

Width = _____ cm   Length = _____ cm

26.	(a) The area of this triangle is 24 cm². The base is 8 cm. What is the height, h?	

8 cm

_____cm

1
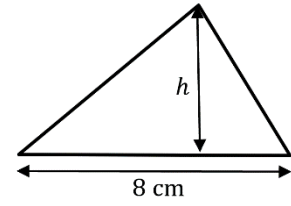
(b) The area of this triangle is 24 cm². The base is three times the height What is the height, h?

h cm

$3h$ cm

1

1

_____cm

27. A container is 20% full of water.

When 120 ml of water is added, the container is $\frac{3}{5}$ full.

How much does the container hold when full?

1

1

1

_____ml

28. Linear sequences always increase or decrease by the same amount.

For example

        5, 7, 9, 11, ...   increases by 2 each time

        15.7, 15.5, 15.3, 15.1 ...   decreases by 0.2 each time

Choose four numbers from the list to make an increasing linear sequence.

        3.2   3.5   3.6   3.8   3.9   4.2   4.3   4.5

1

1

_____   _____   _____   _____

29. Here is a bus timetable:

Manchester Piccadilly	1205	1239	1328	1402
Withington	1230	1305	1354	1429
Didsbury	1241	1315	1411	1443
Parrs Wood	1247	1322	1420	1450

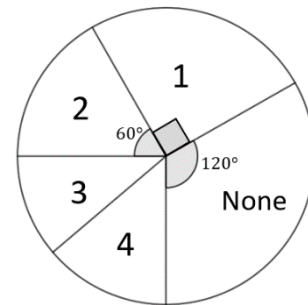(a) What is the shortest journey time between Manchester Piccadilly and Withington?

_____minutes

1

(b) What is the mean journey time from Withington to Didsbury?

1

1

_____minutes

30. 720 Year 6 pupils were asked how many pets they owned.
The results are shown in the pie chart.

(a) How many pupils owned 1 pet?

_____

1

(b) The number of pupils with 3 pets was one third of the number with no pets.
How many more pupils have 2 pets than 3 pets?

1

1

1

_____

31. Polygons are closed shapes with straight sides.
To work out the interior angle of a regular polygon you use the formula:

$$\textbf{Interior angle} = 180 - \frac{360}{n}$$

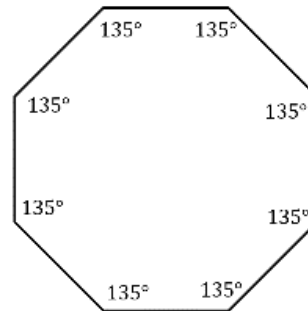where n is the number of sides.

For example:

    Equilateral triangle $n = 3$

$$\text{Interior angle} = 180 - \frac{360}{3}$$
$$= 180 - 120$$
$$= 60°$$
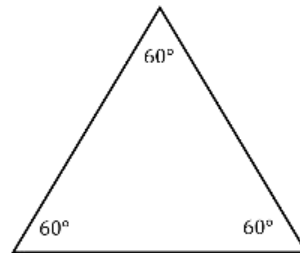
    Regular octagon $n = 8$

$$\text{Interior angle} = 180 - \frac{360}{8}$$
$$= 180 - 45$$
$$= 135°$$

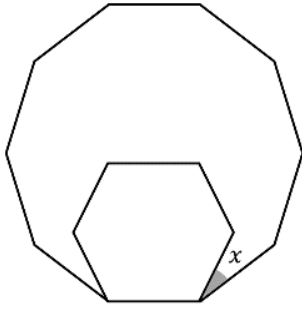Different regular polygons with the same side lengths are going to be drawn inside one another.

(a) The outer polygon has 8 sides, and the inner polygon has 3 sides.
Find the value of x.

$x =$ _____°
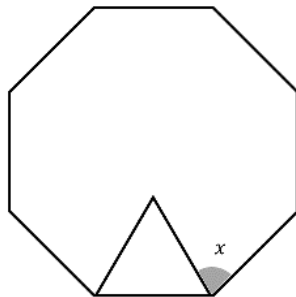
1

1

(b) The outer polygon has 10 sides, and the inner polygon has 6 sides.
Find the value of x.
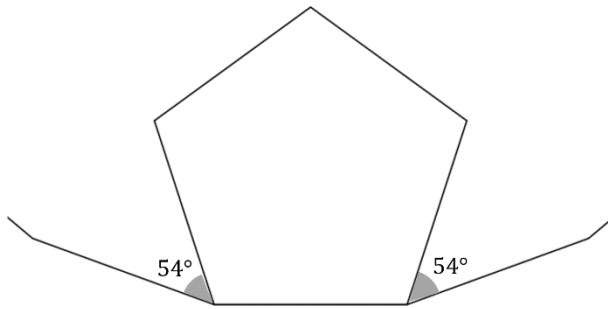

1

1

$x =$ _____ °

(c) The inner polygon has 5 sides, and the outer polygon has n sides.
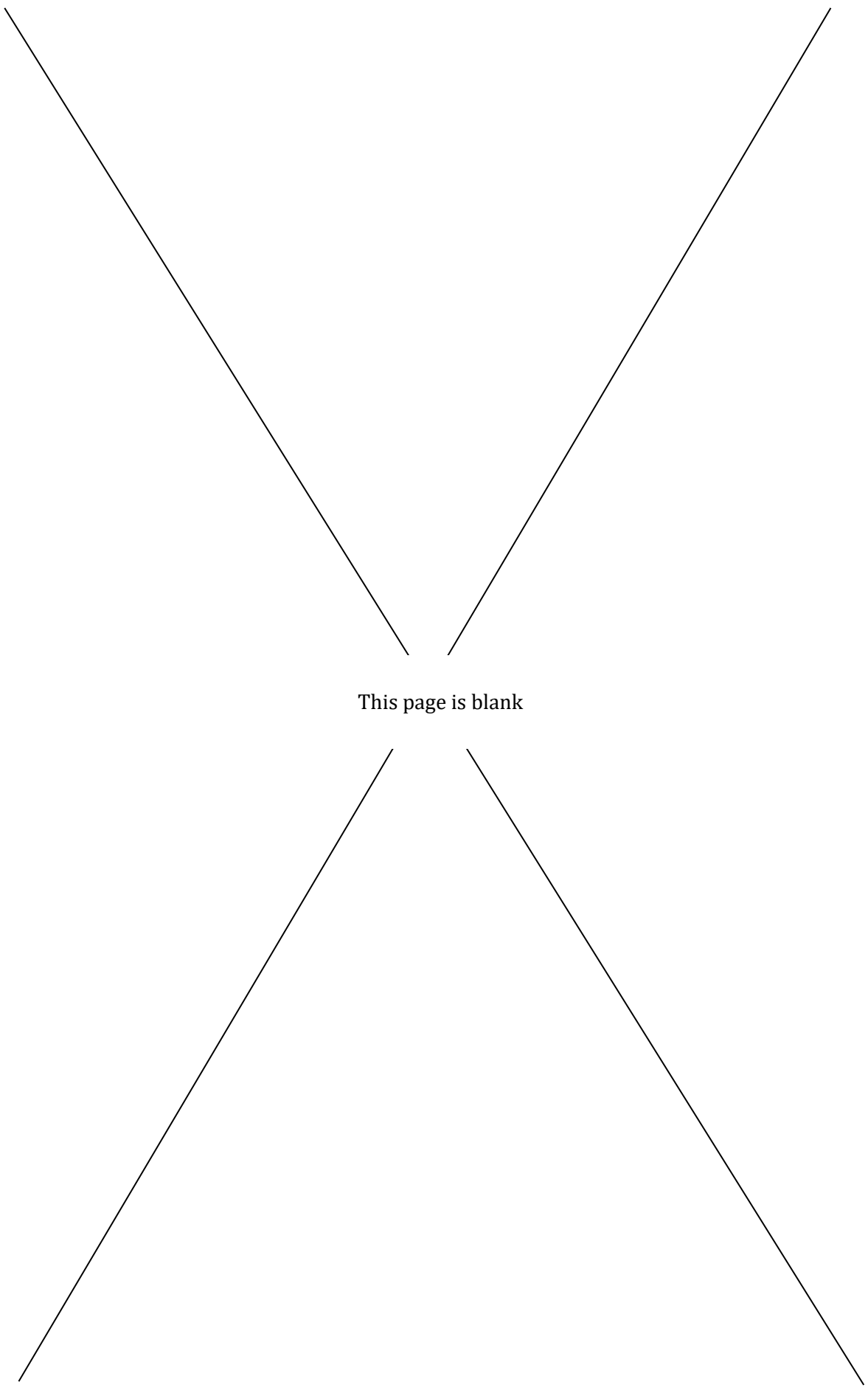The outer polygon is only partly drawn.
Find the value of n.

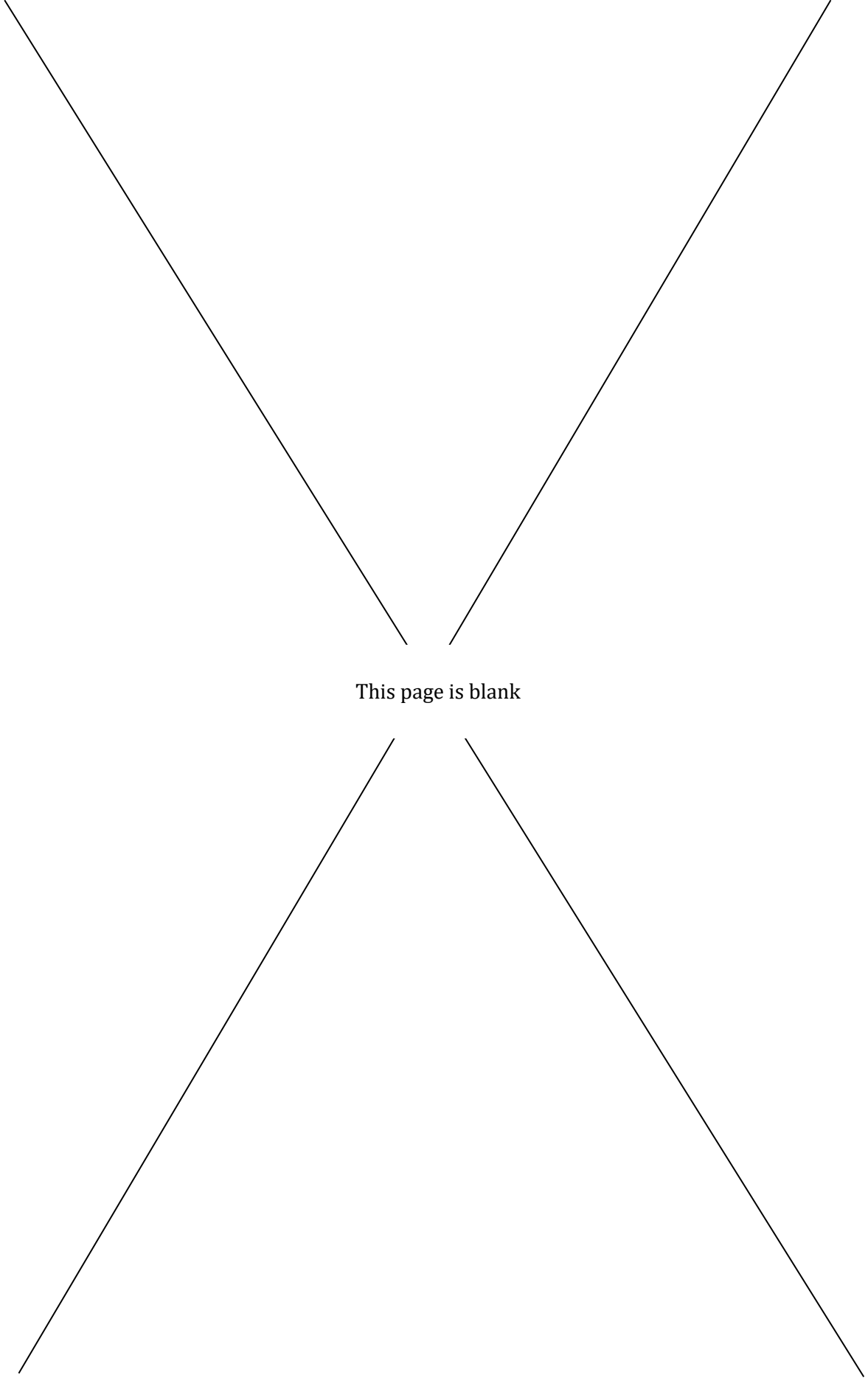54°   54°

1

1

1

$n =$ _____

32. A shop keeper sells bags of crisps and bars of chocolate in the ratio 4:7.
The ratio of bags of ready salted crisps to bags of salt and vinegar crisps is 3:5.
The ratio of bars of milk chocolate to bars of dark chocolate is 2:5.
If the shop keeper sells 20 bars of dark chocolate, how many bags of salt and vinegar crisps do they sell?

1

1

1

_____

END OF TEST – NOW CHECK YOUR ANSWERS

This page is blank

This page is blank