

Name \_\_\_\_\_

Candidate Number \_\_\_\_\_

Room Number \_\_\_\_\_

# WITHINGTON GIRLS' SCHOOL

## JANUARY 2024

### 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.

Question	Total	Marker/Checker
Q1-20	20	
Q21-25	11	
Q26-30	13	
Q31-33	11	
Q34	4	
PAPER TOTAL	59	

**CALCULATORS MUST NOT BE USED**



11.	<p>What number goes in the box?</p> $9 \cdot 3 - \square = 2 \cdot 6$	1
12.	<p>What number goes in the box?</p> $0 \cdot 6 \times 100 = 480 \div \square$	1
13.	<p>What is the next term in the sequence?</p> <p style="text-align: center;">2, 4, 7, 11, 16, .....</p> <p style="text-align: right;">_____</p>	1
14.	<p>Complete the function machine</p> $\boxed{3 \cdot 3} \xrightarrow{\times 4} \boxed{\phantom{00}} \xrightarrow{\div 10} \boxed{\phantom{00}} \xrightarrow{\times 100} \boxed{\phantom{00}}$	1
15.	<p><b>n</b> is the next square number after 144</p> <p style="text-align: right;"><b>n</b> = _____</p>	1
16.	<p><b>n</b> is the missing number in the division</p> $\begin{array}{r} 3 \ 2 \\ 8 \overline{) 2 \ 5 \ n} \end{array}$ <p style="text-align: right;"><b>n</b> = _____</p>	1
17.	<p><b>n</b> is the value when 27 is increased by 50%</p> <p style="text-align: right;"><b>n</b> = _____</p>	1
18.	<p><b>n</b> is the number of minutes it takes to travel 24 km at a speed of 16 km/h (16 km/h means 16 km every hour)</p> <p style="text-align: right;"><b>n</b> = _____</p>	1
19.	<p><b>n</b> is the perimeter of a rectangle with a length of 12 cm and area of 36 cm</p> <p style="text-align: right;"><b>n</b> = _____</p>	1
20.	<p><b>n</b> is the number halfway between 15.7 and 19.5.</p> <p style="text-align: right;"><b>n</b> = _____</p>	1

21. Priya has a new Apple watch which records how far she walks each day. The table below shows her results for Wednesday, Thursday, and Friday.

Day	Distance
Wednesday	1.2 km
Thursday	3540 m
Friday	5370 m

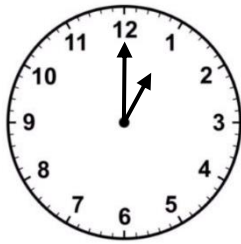
Priya wants to walk 12.5 km in 4 days.  
How far would she need to walk on Saturday to achieve her goal?

\_\_\_\_\_ km

1  
1

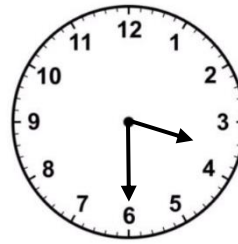
22. Find the angle between the minute and hour hands on the clock.

(a)



\_\_\_\_\_°

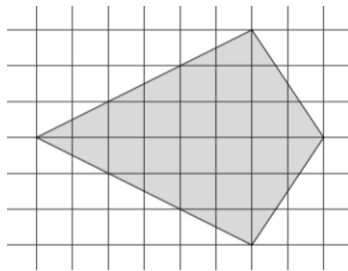
(b)



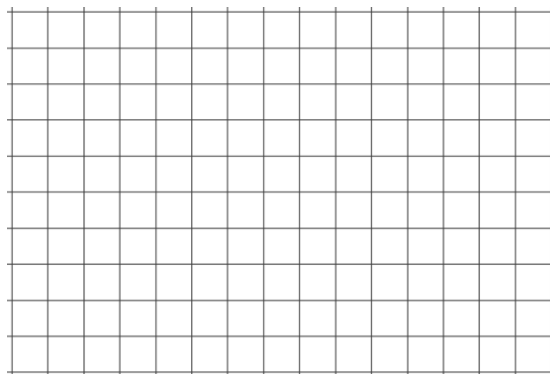
\_\_\_\_\_°

1  
1

23. The diagram shows a kite drawn on a grid.

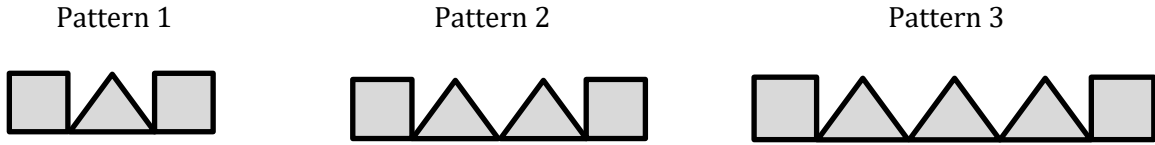


On the grid draw a rectangle with the same area as the kite.



1  
1

24. Eve is drawing a pattern using squares and triangles.  
The width of each square is 2.5 cm, and the width of each triangle is 3 cm.



(a) Work out the total width of pattern 3.

\_\_\_\_\_cm

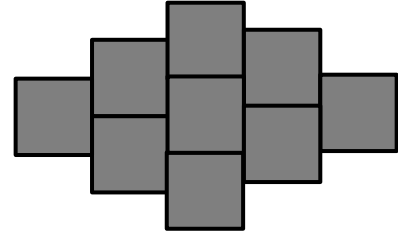
(b) One of the patterns has a width of 65 cm. How many triangles are in the pattern?

\_\_\_\_\_triangles

25. When Ellen shares her sweets between 8 of her friends, they each get 24 sweets.  
How many sweets would each friend get if Ellen shared them between 12 of her friends?

\_\_\_\_\_sweets

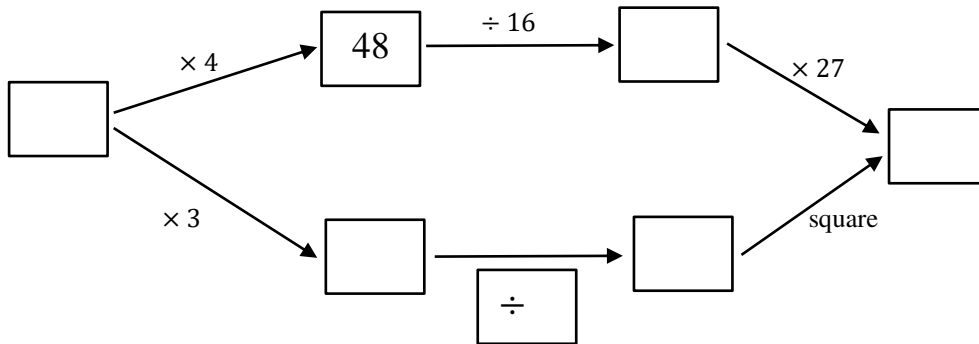
26. This shape is made from identical squares of length 3 cm.  
What is the perimeter of the shape?



\_\_\_\_\_ cm

1  
1

27. Fill in the missing numbers in each of the six boxes.



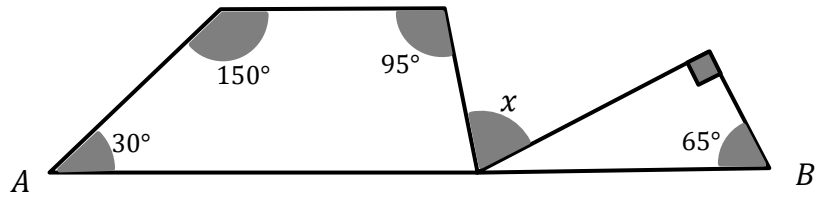
1  
1

28. Sally sells chocolate bars in boxes of 50.  
It costs Sally 7 pence to make each chocolate bar.  
She sells each box of 50 to shops for £10.  
How much profit does Sally make on each bar of chocolate?

\_\_\_\_\_ pence

1  
1  
1

29. AB is a straight line.  
Find the size of the angle  $x$ .



\_\_\_\_\_°

1  
1  
1

30. Aleeza spends £5.85 at the supermarket.  
She buys 500g of strawberries and 1.5kg of oranges.  
Strawberries cost £4.50 a kilogram.  
Find the cost of 1 kilogram of oranges.

£ \_\_\_\_\_

1  
1  
1

31. Janani sells earrings.  
Each week she sells 7 pairs of earrings and then doubles her stock at the end of each week ready for the following week.  
At the beginning of week 1 she has 15 earrings.  
At the beginning of which week will Janani have over 40 pairs of earrings for the first time?

1  
1  
1

32.  $\otimes$  means square the first number and add two times the second number.

For example:  $6 \otimes 5 = 6^2 + 2 \times 5 = 36 + 10 = 46$

Find the value of  $\star$  and the value of  $\blacklozenge$ .

(a)  $7 \otimes \star = 64$

$\star = \underline{\hspace{2cm}}$

(b)  $\blacklozenge \otimes 4 = 33$

$\blacklozenge = \underline{\hspace{2cm}}$

1  
1  
1  
1

33. Shahnaz is buying a new television.  
She makes 3 separate payments to cover the cost of her television.

The table below shows how much money Shahnaz pays:

Payment	Amount paid
Payment 1	$\frac{4}{15}$ of the total cost
Payment 2	40% of the total cost
Payment 3	£320

Work out how much Shahnaz has to pay for Payment 2.

£ \_\_\_\_\_

1  
1  
1  
1

34. Tamsin has a game which uses square and triangular tiles.  
The tiles are coloured either red or blue.

- $\frac{1}{2}$  of the tiles are square
- $\frac{1}{4}$  of the tiles are red
- $\frac{5}{12}$  blue triangles
- There are 5 red triangles

How many red square tiles are there?

1  
1  
1  
1