

The Wellington School Maths Challenge

26 November 2021



Q1. Which of these calculations gives the answer 2021?

A.
 41×49

B.
 42×48

C.
 43×47

D.
 44×46

E.
 45×45

Q2. Which of the following times tables includes the number 14212?

A.
3

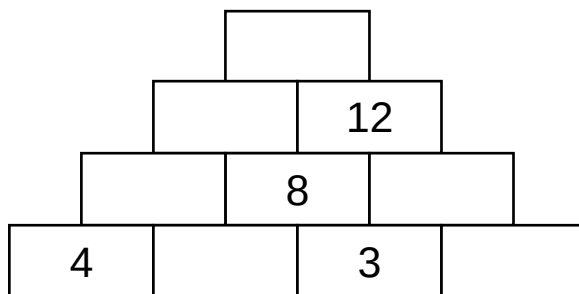
B.
5

C.
7

D.
11

E.
13

Q3. In this wall each brick is the sum of the two bricks beneath it.
What number will fill the top brick?



A.
27

B.
29

C.
30

D.
32

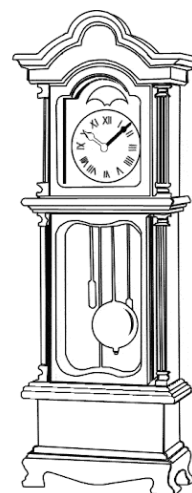
E.
34

Q4. A clock chimes every half-an-hour.

On the hour, the number of times the clock chimes is equal to the time written in the twelve hour clock.
So, at three o'clock, the clock chimes three times.

At half past the hour, the clock always chimes once.

How many times does the clock chime in one day?



A.
102

B.
168

C.
176

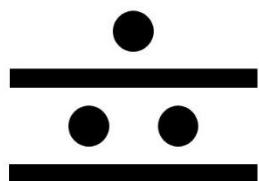
D.
180

E.
184

- Q5.** A shop sells muffins for £1.35 each.
Peter buys as many muffins as he can with a £20 note.
How much change does Peter get?

A. 10p **B.** 35p **C.** 90p **D.** £1 **E.** £1.10

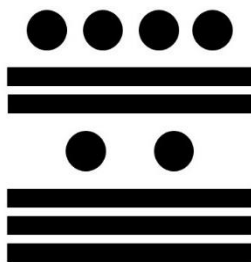
- Q6.** Maya numerals are a way of writing numbers, used by the ancient Mayans in South America.
In Maya numerals, each lower line is worth 5, each lower circle is worth 1, each upper line is worth 100 and each upper circle is worth 20.
So, for example:



$$= 5 + 1 + 1 + 100 + 20$$

$$= 127$$

What number does the symbol below represent?



A. 277 **B.** 297 **C.** 317 **D.** 354 **E.** 453

- Q7.** The value of an antique vase doubles every six years.
It is now worth £100.
How much will the vase be worth in the year 2087?

A. £102,400 **B.** £201,200 **C.** £202,400 **D.** £204,800 **E.** £409,600

- Q8.** For each shape below, Rebecca adds up the number of sides it has, the number of lines of symmetry it must have and the number of letters in its name.
When Rebecca puts these totals in order, which shape is in the middle?

A. rectangle **B.** square **C.** rhombus **D.** parallelogram **E.** circle

- Q9.** The number of gold, silver and bronze medals which some countries achieved in the Paralympic Games are shown in the table below:

Country	Gold Medals	Silver Medals	Bronze Medals
Azerbaijan	14	1	4
Canada	5	10	6
Columbia	3	7	14
Hungary	7	5	4
South Korea	2	10	12

Trudy has a special way of deciding which country has done the best. She gives each country a score calculated using this rule:

$$\text{score} = \text{'gold medals'} \times 17 + \text{'silver medals'} \times 15 + \text{'bronze medals'} \times 9$$

Which of the five countries in the table has achieved the highest score?

- A.** Azerbaijan **B.** Canada **C.** Columbia **D.** Hungary **E.** South Korea

- Q10.** What is the value of: $6 - (5 - 4)^3 \times 2$?

- A.** 10 **B.** 8 **C.** 6 **D.** 4 **E.** 0

- Q11.** Mr Boring has just painted the walls of his kitchen and is now watching them dry. This will take 8 hours.

Meanwhile, Mr Dull is in his garden watching the grass grow.

The grass grows at a rate of 0.0003cm per minute.

How much will Mr Dull's grass have grown in the time it takes for Mr Boring's paint to dry?

- A.** 0.00144 cm **B.** 0.0144 cm **C.** 0.144 cm **D.** 0.24 cm **E.** 1.44 cm

- Q12.** What is the value of $2xy - 5$ when $x = 4$ and $y = 6$?

- A.** 8 **B.** 37 **C.** 43 **D.** 48 **E.** 241

Q13. In show jumping, each rider must ride their horse around a course, jumping over several obstacles.

Each rider starts with 300 points. They lose 7 points every time they knock over an obstacle and they lose 1 point for every second over 80 seconds which they take to complete the course.

Tom takes 1 minute and 32 seconds to complete the course and knocks over two obstacles.

How many points does Tom score?



- | | | | | |
|-----------|-----------|-----------|-----------|-----------|
| A. | B. | C. | D. | E. |
| 234 | 274 | 278 | 281 | 286 |

Q14. The number 13 is an emirp number because it is a prime number and its reversal, 31, is also a prime number. Which of these numbers is also an emirp number?

- | | | | | |
|-----------|-----------|-----------|-----------|-----------|
| A. | B. | C. | D. | E. |
| 16 | 17 | 18 | 19 | 23 |

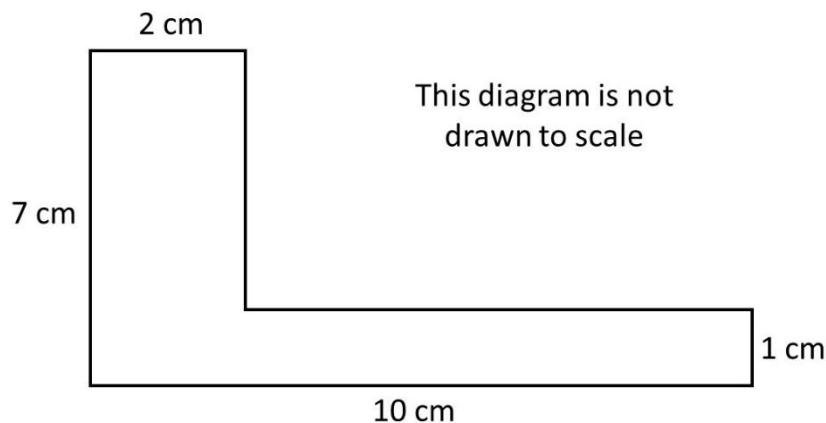
Q15. When these lengths are placed in order, which is in the middle?

- | | | | | |
|-----------|-----------|-----------|--------------------|-----------|
| A. | B. | C. | D. | E. |
| 1300 mm | 1.2 m | 150 cm | $\frac{1}{2}$ mile | 2 feet |

Q16. Marek has 4 numbers. The mean of these numbers is 4, the median is 4, the mode is 4 and the range is 4. What is the largest of Marek's numbers?

- | | | | | |
|-----------|-----------|-----------|-----------|-----------|
| A. | B. | C. | D. | E. |
| 4 | 6 | 8 | 10 | 44 |

Q17. What is the area of the shape below?



- A.** 20 cm² **B.** 22 cm² **C.** 24 cm² **D.** 34 cm² **E.** 140 cm²

Q18. Which of these pairs of dates always fall on the same day of the week in the same year?

- | | | | | |
|---|---|--|---|--|
| A.
1 st July
&
1 st April | B.
1 st June
&
1 st September | C.
1 st May
&
1 st October | D.
1 st March
&
1 st December | E.
1 st August
&
1 st November |
|---|---|--|---|--|

Q19. At a sports club, $\frac{1}{2}$ of the junior members are girls, $\frac{2}{3}$ have brown hair and $\frac{1}{5}$ wear glasses.

What is the smallest possible number of junior members at the sports club?

- A.** 5 **B.** 20 **C.** 25 **D.** 30 **E.** 50

Q20. Lauren has a three-digit number.
Four of the following statements about Lauren's number are true.
One of the statements is false.
Which statement is false?

- A.** It is a square number
B. It is a multiple of three
C. It is an odd number
D. Its first digit is a four
E. It is palindromic (it reads the same forwards as backwards, e.g. 262)

**The following five questions are not multiple choice.
Write your answers on the answer sheet in the spaces provided.**

- Q21.** Sue writes down some word sequences used in maths or everyday life.
The first letters of the words in Sue's sequences are given below.

			M	T	?	T	F	S	S				
		J	F	M	?	M	J	J	A	S	O	N	D
O	T	T	F	F	?	S	E	N	T				
			T	Q	?	H	H	O	N	D			

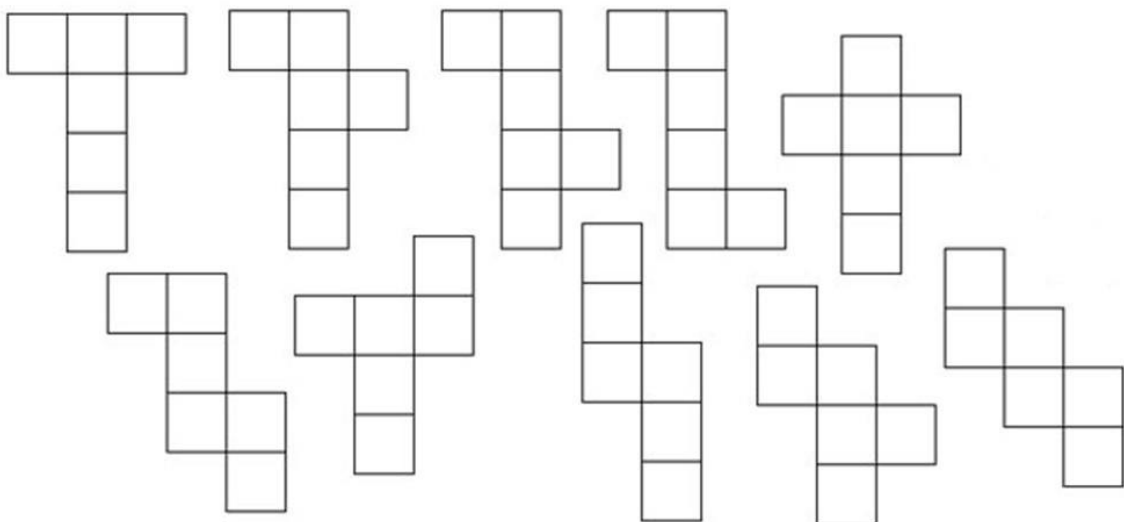
There are some letters missing from Sue's sequences.
What animal's name is spelled out by the missing letters?

- Q22.** Sam's father is four times older than Sam.
In four years' time, Sam's father will be three times older than Sam.
How old is Sam now?

- Q23.** Mr du Toit has a long staircase.
He goes up 3 stairs, then down 6 stairs, then up 5 stairs, then down 4 stairs, then up 7 stairs.
He is now on the eighth step.
On which step did Mr du Toit start?

- Q24.** What is 1% of 10% of 50% of eight hundred million?

- Q25.** There are eleven possible nets of a cube.
Ten of these nets are shown below:



Draw the eleventh possible net of a cube.



Wellington School

Maths Challenge 2021

School Name _____

Pupils' Names _____

In the spaces provided, write the one letter you think answers each question.
One mark will be awarded for each correct answer.

1. |_| 6. |_| 11. |_| 16. |_|

2. |_| 7. |_| 12. |_| 17. |_|

3. |_| 8. |_| 13. |_| 18. |_|

4. |_| 9. |_| 14. |_| 19. |_|

5. |_| 10. |_| 15. |_| 20. |_|

For the questions 21 to 24, write your answers in the spaces provided.

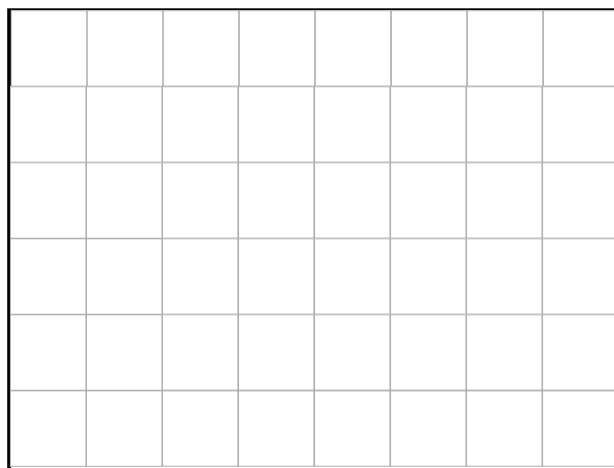
21. |_|_|_|_|

22. |_|_|_|_|

23. |_|_|_|_|

24. |_|_|_|_|

25. Draw your answer to question 25 in this box:



Maths Challenge 2021

Answers

Q1	C
Q2	D
Q3	B
Q4	D
Q5	E
Q6	B
Q7	D
Q8	A
Q9	E
Q10	D
Q11	C
Q12	C
Q13	B
Q14	B
Q15	A
Q16	B
Q17	B
Q18	A
Q19	D
Q20	E
Q21	WASP
Q22	8
Q23	3 or 3 rd or 'the third'
Q24	400,000 or equivalent
Q25	any orientation of:

