The Wellington School Maths Challenge

26 November 2016

Q1. Which of these calculations does <u>not</u> equal 2016?

A.	B.	C.	D.	E.
$6 \times 12 \times 28$	$7 \times 9 \times 24$	$7 \times 16 \times 18$	$8 \times 12 \times 21$	$8 \times 14 \times 18$

Q2. Sam writes these numbers in words and then places them in alphabetical order. Which number will be in the middle?

A.	B.	C.	D.	E.
4	5	14	40	50

Q3. What is the sum of the first ten odd numbers?

A.	B.	C.	D.	E.
100	102	105	108	110

Q4. How many fours are there is this picture?

A.	B.	C.	D.	E.
24	23	22	21	20

Q5. Andy finds $\frac{3}{8}$ of £96. Sue finds $\frac{4}{9}$ of his answer.

What answer does Sue get?

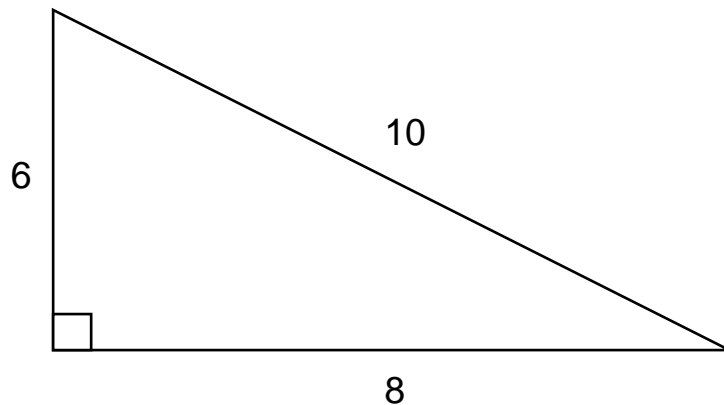| A.	B.	C.	D.	E.
4	12	16	18	24

Q6. On 19 July 2016 the highest temperature in England was 33.5°C. In Wales the temperature reached 32.4°C and in Scotland it was 28.9°C. What was the mean maximum temperature for the three countries?

A.	B.	C.	D.	E.
31.6°C	31.7°C	31.8°C	31.9°C	32°C

Q7. Twenty three balloons cost £6.67. How much will eighteen cost?

A.	B.	C.	D.	E.
£4.64	£4.93	£5.04	£5.22	£5.51

Q8. What is the difference between the area and perimeter of this triangle?

A.	B.	C.	D.	E.
0	4	12	24	456

Q9. A box measuring 10cm by 10cm by 10cm will hold 8 wooden blocks. How many blocks will fit in a box measuring 20cm by 20cm by 20cm?
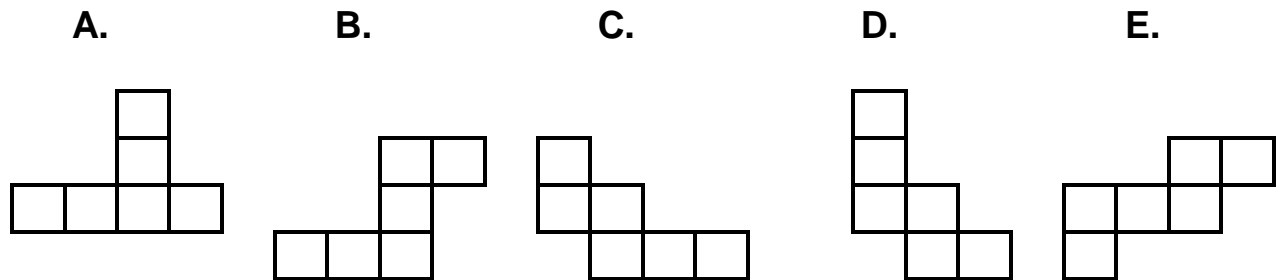
A.	B.	C.	D.	E.
8	16	32	64	128

Q10. Which of these fractions is <u>not</u> equivalent to the others?

A.	B.	C.	D.	E.
$\dfrac{1}{3}$	$\dfrac{4}{12}$	$\dfrac{13}{39}$	$\dfrac{16}{48}$	$\dfrac{24}{76}$

Q11. In a mathematical hotel, Alice is given room 2, Bruce has room 3 and Carol has room 5. Who stays in room 29?

A.	B.	C.	D.	E.
Keith	Jason	Mark	Ian	Lucy

Q12. Which of these nets will make a cube?

A.   B.   C.   D.   E.

Q13. 1 inch is the same as 2.54cm. How many inches are there in 1 metre? Give your answer to the nearest inch.

A.	B.	C.	D.	E.
38	39	40	41	42

Q14. Marek has £430. He adds 25% to this value and then deducts 20% from the new amount. How much money does he have now?

A.	B.	C.	D.	E.
£420	Between £420 & £430	£430	Between £430 & £440	£440

Q15. On a clock the hour hand rotates 105°. How far does the minute hand rotate?

A.	B.	C.	D.	E.
1080°	1140°	1200°	1260°	1440°

Q16. Tom has a hole in his bucket.

Water pours into the bucket at a rate of 2 litres per minute but ½ litre escapes out of the hole every minute.

How long does it take for Tom to fill his 5 litre bucket?

A.	B.	C.	D.	E.
3 minutes	3 minutes 5 seconds	3 minutes 10 seconds	3 minutes 15 seconds	3 minutes 20 seconds

Q17. The numbers 6, 8 and 10 form a Pythagorean Triple because:

$$6^2 + 8^2 = 10^2$$

Which of these groups of numbers also form a Pythagorean Triple?

A.	**B.**	**C.**	**D.**	**E.**
5, 12 and 13	4, 7 and 8	2, 3 and 4	7, 11 and 14	13, 15 and 20

Q18. Victoria starts with a number which she calls x.
She doubles the number and then adds six. Next, she halves her new value before finally subtracting five. What is her answer?

A.	**B.**	**C.**	**D.**	**E.**
$x-2$	$-x$	$2x-2$	$4x-5$	$x+1$

Q19. When placed in order, which of these values is in the middle?

A. The angle around a point (in degrees).
B. The number of days in a year.
C. Nineteen squared.
D. Seven cubed.
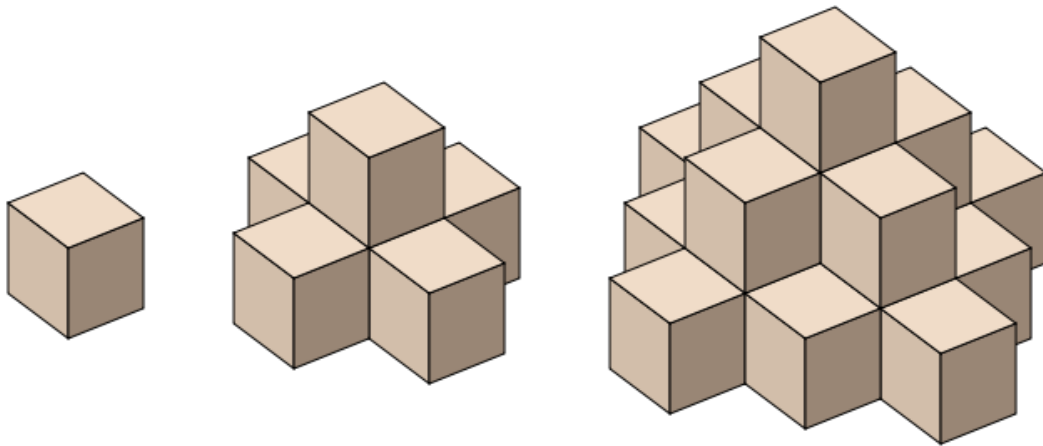**E.** The number of minutes between 9.57am and 4.01pm.

Q20. In this question A = 1, B = 2 and so on.

KRISTOFF is adding up the values of the letters in his name; he gets 104. Which of these characters is half FROZEN ?

A.	**B.**	**C.**	**D.**	**E.**
ANNA	ELSA	HANS	OLAF	SVEN

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

Q21. Three corners of a parallelogram are at (5,2), (1,1) and (2,4).
What are the coordinates of the fourth corner?

Q22. Trudy has 5p. After 1 month she has 15p. After 2 months she has 45p.
Every month Trudy's money triples. After how many months will Trudy
first have over £1000?

Q23. Small cubes are stacked up on a table to form the first three solid
shapes in a series, which are shown below:

One cube was used for the first shape, six cubes were used for the
second shape. How many cubes would be needed to make the fourth
shape in the series?

Q24. $\displaystyle\prod_{n=1}^{5} n$ means 'the product of the whole numbers from 1 to 5'

and so its value is 120.

What is the value of $\displaystyle\prod_{n=6}^{10} n$?

Q25. 6 is a Perfect Number because its factors (not including itself)
add up to itself: 1 + 2 + 3 = 6

What is the next largest Perfect Number?

Wellington School
Maths Challenge 2016

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 last five questions write your answers in the spaces provided.

21. |_(___,___)_|

22. |_____|

23. |_____|

24. |_____|

25. |_____|

Maths Challenge 2016
Answers

Q1	B
Q2	D
Q3	A
Q4	D
Q5	C
Q6	A
Q7	D
Q8	A
Q9	D
Q10	E
Q11	B
Q12	E
Q13	B
Q14	C
Q15	D
Q16	E
Q17	A
Q18	A
Q19	C
Q20	C
Q21	(6,5) or (4,-1) or (-2,3)
Q22	10
Q23	44
Q24	30240
Q25	28