The Wellington School Maths Challenge

28 November 2015

Q1. What is the difference between the product of 9, 10 and 11 and the sum of 9, 10 and 11?

A.	**B.**	**C.**	**D.**	**E.**
870	879	900	960	969

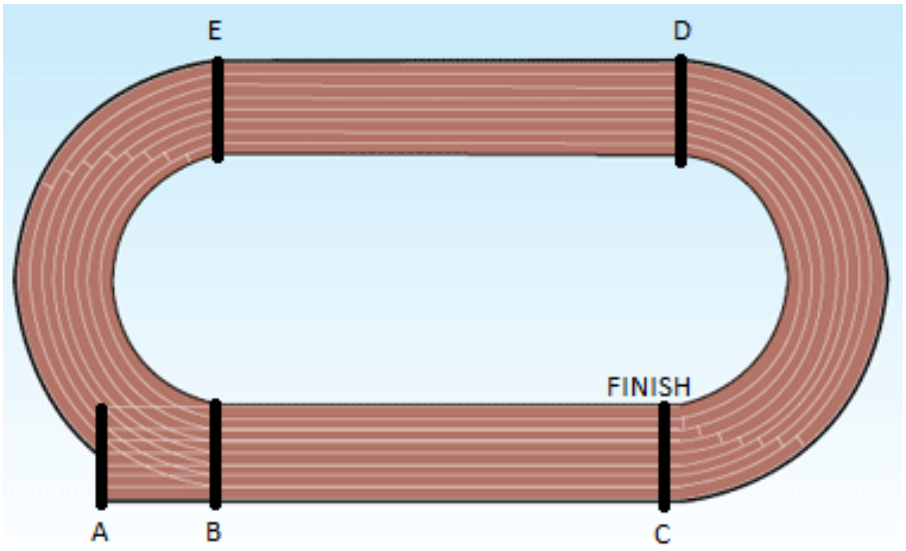
Q2. On a compass, what is the angle between East and South West?

A.	**B.**	**C.**	**D.**	**E.**
45°	90°	135°	145°	180°

Q3. Norman buys 9 first class stamps costing 63p each and 7 second class stamps costing 54p each. How much change does he get from £10?

A.	**B.**	**C.**	**D.**	**E.**
65p	55p	45p	35p	25p

Q4. One lap of an athletics track is 400m and the athletes always run anticlockwise. Victoria runs in a 1500m race. Where does she start?



Q5. $\frac{5}{8}$ of a number is 20. What is 15% of the number?

A.	**B.**	**C.**	**D.**	**E.**
1.875	4	4.8	6	6.4

Q6. Trudy has a piece of paper measuring 80cm by 120cm.
She folds it in half, then in half again and then in half for a third time.
What lengths can the new rectangle not have?

A.	**B.**	**C.**	**D.**	**E.**
10cm by 15cm	40cm by 30cm	20cm by 60cm	10cm by 120cm	80cm by 15cm

Q7. Which of these calculations does not equal 2015?

A.	**B.**	**C.**	**D.**	**E.**
65×31	95×21	155×13	403×5	2015×1

Q8. Wellington School are playing in a cricket match.
The score book looks like this:

2 . 4 . 4 1	. 1 . 3 4 .	1 1 1 4 . 1
1 1 3 . 6 .	4 . . . 2 1	. . 6 2 3 1
2 1 1 . . 6	3 . 6 2 . .	1 . . 2 4 1

The values show the numbers of runs scored from each ball bowled.
The dots show when there is no run scored.
How many more runs are needed for Wellington to reach one hundred?

A.	**B.**	**C.**	**D.**	**E.**
3	4	5	13	14

Q9. In this year's Tour de France, Chris Froome completed the first stage in 15 minutes & 46 seconds, the second stage in 3 hours, 29 minutes & 3 seconds, the third stage in 3 hours, 26 minutes & 48 seconds and the fourth stage in 5 hours, 29 minutes & 1 second. What was his total time for the first four stages?

A.	**B.**	**C.**	**D.**	**E.**
4 hours, 28 minutes & 18 seconds	11 hours, 59 minutes & 58 seconds	12 hours & 38 seconds	12 hours, 40 minutes & 38 seconds	28 hours, 10 minutes & 52 seconds

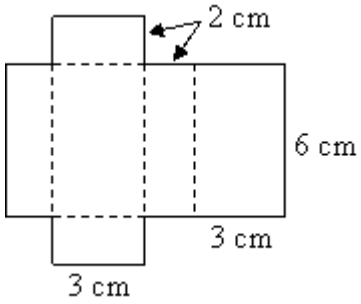
Q10. What is 20% of the answer to $4+5\times6$?

A.	**B.**	**C.**	**D.**	**E.**
1.7	2	2.7	6.8	10.8

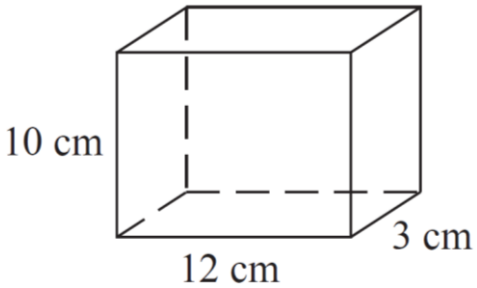
Q11. Her Royal Highness Princess Charlotte of Cambridge was born on 2nd May 2015. How many days old is she today?

A.	**B.**	**C.**	**D.**	**E.**
206	207	208	209	210

Q12. This net will fold up to make a box.



What is the maximum number of boxes which can fit into this cuboid?



A.	**B.**	**C.**	**D.**	**E.**
10	6	12	4	8

Q13. What is $1^1 + 2^2 + 3^3 + 4^4$?

A.	**B.**	**C.**	**D.**	**E.**
30	96	110	288	10^{10}

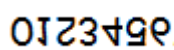
Q14. Tom bought a large cake. Edward ate $\frac{1}{2}$ of it, James ate $\frac{1}{4}$ of it and George ate $\frac{1}{8}$ of it. How much was left for Tom to eat?

A.	**B.**	**C.**	**D.**	**E.**
$\frac{1}{16}$	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{3}$	$\frac{1}{2}$

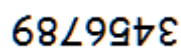
Q15. I start with the numbers 0123456789. I use either a rotation or a reflection to get an image. Which of these images can I not get?

A.

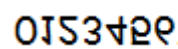
B.



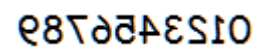
C.



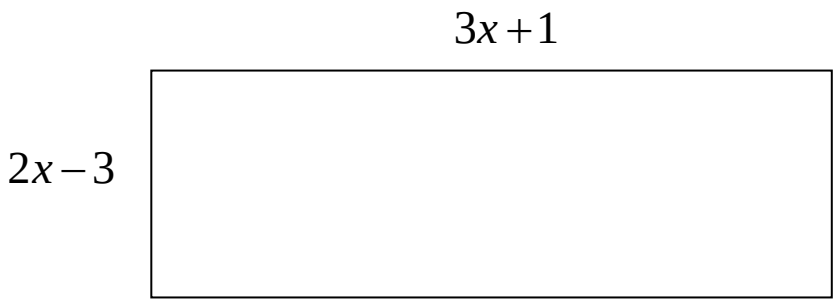
D.



E.



Q16. What is the perimeter of this rectangle?



A.	**B.**	**C.**	**D.**	**E.**
$5x - 4$	$5x - 2$	$6x$	$10x - 8$	$10x - 4$

Q17. How many of these statements are true about the whole numbers from 1 to 50?

- There are six square numbers
- There are sixteen prime numbers
- There are fifteen numbers which start with the letter F
- There are four factors of fifty

A.	**B.**	**C.**	**D.**	**E.**
none	one	two	three	all four

Q18. Samantha has 1 red ball, 2 blue balls and 3 green balls.
She chooses three balls.
How many different combinations of colours could she select?
[For example: choosing 2 blue balls and 1 green ball would be one combination.]

A.	**B.**	**C.**	**D.**	**E.**
4	5	6	7	8

Q19. Marek buys 25 toilet rolls for £10. How much does each roll cost?

A.	**B.**	**C.**	**D.**	**E.**
2.5 pence	4 pence	25 pence	40 pence	£2.50

Q20. What is the difference between the product of $\frac{1}{4}$, –24 and 2.5

and the sum of $\frac{1}{4}$, –24 and 2.5?

A.	**B.**	**C.**	**D.**	**E.**
6.25	11.75	19.75	25.25	36.25

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

Q21. I am a number between one and two hundred. I am six less than a square number and four more than a prime number.
What number am I?

Q22. There are 14 pounds in 1 stone, 8 stones in 1 hundredweight and 20 hundredweights in 1 ton. How many pounds are there in one ton?

Q23. A digital clock displays the time using the 24 hour clock. How many times between 6.00am and 8.00pm are the minutes a multiple of the hours? For example: 14:42 is one.

Q24. $\sum_{n=1}^{10} n$ means 'the sum of the whole numbers from 1 to 10'

and so its value is 55.

What is the value of $\sum_{n=20}^{80} n$?

Q25. A Koch snowflake can be constructed by starting with an equilateral triangle and then following these instructions:

1. divide each side into three segments of equal length.
2. draw an equilateral triangle that has the middle segment from step 1 as its base and points outward.
3. remove the line segment that is the base of the triangle from step 2.

The first three snowflakes look like this:

How many sides does the next snowflake have?

Wellington School
Maths Challenge 2015

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. |_____|

Wellington School,
South Street, Wellington. Somerset. TA21 8NT.
Telephone: 01823 668800

Maths Challenge 2015
Answers

Q1	**D**
Q2	**C**
Q3	**B**
Q4	**D**
Q5	**C**
Q6	**A**
Q7	**B**
Q8	**E**
Q9	**D**
Q10	**D**
Q11	**E**
Q12	**A**
Q13	**D**
Q14	**B**
Q15	**B**
Q16	**E**
Q17	**B**
Q18	**C**
Q19	**D**
Q20	**A**
Q21	**75**
Q22	**2240**
Q23	**67**
Q24	**3050**
Q25	**192**