

The Wellington School Maths Challenge

24 November 2012



Q1. A Quidditch match started at 9.25am and finished at 4.10pm.
How long did the match last?

- A.** 5 hrs 15 mins **B.** 685 mins **C.** 6 hrs 45 mins **D.** 515 mins **E.** 7 hrs 15 mins

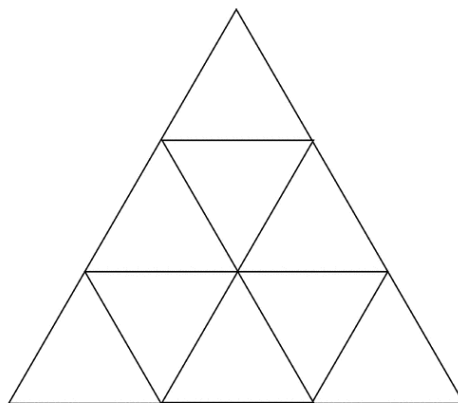
Q2. When $n = 4$ which of these expressions has the smallest value?

- A.** $10 - n^2$ **B.** $\frac{n^2}{8} - 2$ **C.** $3n - 15$ **D.** $-2n + 6$ **E.** $1 - \sqrt{n}$

Q3. I start with £160 in my wallet.
I spend half of the money and then get paid half of the money that is now in my wallet. The process is repeated.
What is the last amount that I can put exactly in my wallet?

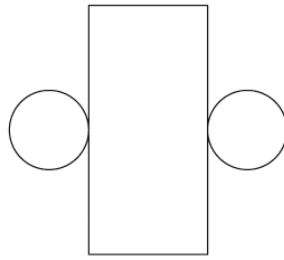
- A.** £33.75 **B.** £34.50 **C.** £35 **D.** £36.25 **E.** £37.50

Q4. How many equilateral triangles are there in this diagram?



- A.** 10 **B.** 11 **C.** 12 **D.** 13 **E.** 14

Q5. This is the net of which solid shape?



- A.** cube **B.** cylinder **C.** cone **D.** tetrahedron **E.** sphere

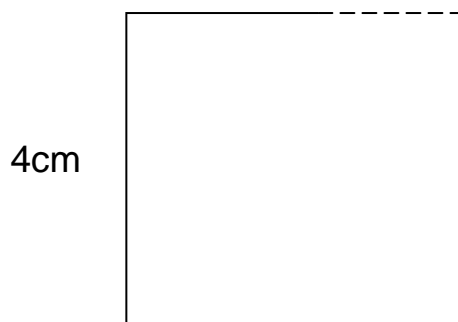
Q6. The first ten prime numbers are 2, 3, 5, 7, 11, 13, 17, 19, 23, 29. What is the next prime number?

- A.** 31 **B.** 33 **C.** 35 **D.** 37 **E.** 39

Q7. When these decimals are placed in order, which is in the middle?

- A.** 0.37 **B.** 0.3 **C.** 0.73 **D.** 0.07 **E.** 0.703

Q8. This rectangle has a perimeter of 28cm. What is its area?



- A.** 20cm² **B.** 28cm² **C.** 40cm² **D.** 48cm² **E.** 96cm²

Q9. Geoff buys 7 apples costing 23p each and 9 oranges costing 36p each. How much change does he get from £5?

- A.** none **B.** 15p **C.** 28p **D.** 96p **E.** £1.05

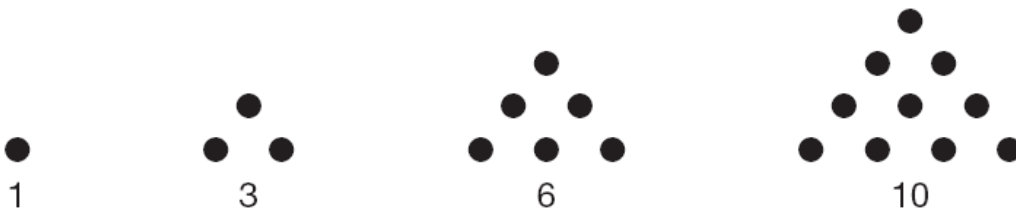
Q10. Eight calculators cost £43.20. How much will twelve cost?

- A.** £48.60 **B.** £60.48 **C.** £64.80 **D.** £68.40 **E.** £84.60

Q11. Mr Reader writes down the numbers from 1 to 100. How many times has he written the digit 9?

- A.** 18 **B.** 19 **C.** 20 **D.** 21 **E.** 22

Q12. Here are the first four triangular numbers:



Which of these numbers is not a triangular number?

- A.** 15 **B.** 45 **C.** 55 **D.** 85 **E.** 105

Q17. Boxes of Cornflakes come in many different sizes.
Which is the best value for money?



- A.** 1kg **B.** 750g **C.** 500g **D.** 400g **E.** All the same

Q18. On a clock the minute hand rotates 840° .
How far does the hour hand rotate?

- A.** 65° **B.** 70° **C.** 75° **D.** 80° **E.** 85°

Q19. Which of these fractions is not equivalent to $\frac{2}{5}$?

- A.** $\frac{4}{10}$ **B.** $\frac{22}{55}$ **C.** $\frac{34}{85}$ **D.** $\frac{42}{110}$ **E.** $\frac{54}{135}$

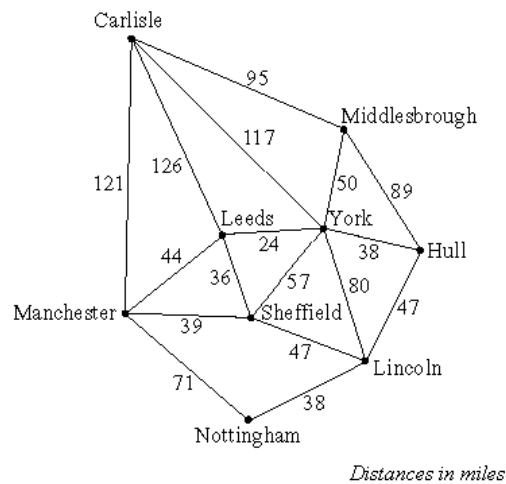
Q20. Which of these calculations does not equal 2012?

- A.** $40^2 - 2 \times 6^2 + 22^2$
B. $41^2 + 2 \times 9^2 + 13^2$
C. $42^2 - 2 \times 2^2 + 16^2$
D. $43^2 + 2 \times 9^2 + 1^2$
E. $44^2 - 2 \times 6^2 + 2^2$

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

Q21. Andrew adds up the first ten whole numbers. He gets the answer 55.
Tom adds up the first \bullet whole numbers. He gets the answer 300.
How many numbers did Tom add up?

Q22. Use the network diagram below to find the shortest distance from Carlisle to Lincoln.



Q23.

$$2^{10} = 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$$

$$= 1024$$

What is 3^{10} ?

Q24. There are 3 feet in 1 yard, 220 yards in 1 furlong and 8 furlongs in 1 mile. How many feet are there in one mile?

Q25. Rearrange the numbers, leaving the centre square blank, so that each side adds up to 15.

1	2	3
8		4
7	6	5



Wellington School

Maths Challenge 2012

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 2012
Answers

- Q1 C
- Q2 A
- Q3 A
- Q4 D
- Q5 B
- Q6 A
- Q7 A
- Q8 C
- Q9 B
- Q10 C
- Q11 C
- Q12 D
- Q13 A
- Q14 E
- Q15 C
- Q16 D
- Q17 B
- Q18 B
- Q19 D
- Q20 E
- Q21 24
- Q22 197
- Q23 59049
- Q24 5280
- Q25

3	4	8
5		1
7	2	6