Primary Mathematics Challenge

13 – 17 November 2017
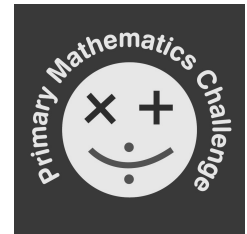
Name .... Class ....

Please do not start to answer questions until you are told to do so. When you do turn over the page you will have 45 minutes for the challenge.

You must do all the work on your own. You should use rough paper for this.

For questions 1 – 20, write down A B C D or E in the space for each answer.
For questions 21 – 25, write down your answer in the space.
Each correct answer gains one mark.

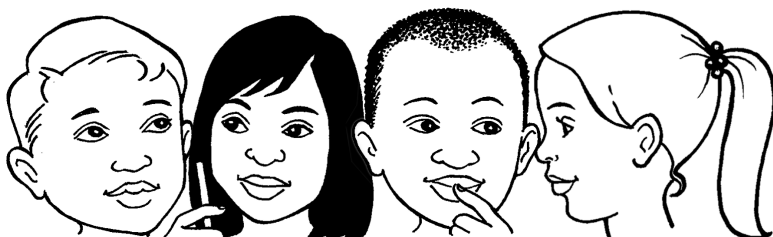Good Luck. Enjoy the challenge!

Practice Questions

P1   What is the missing number in Arthur's list?   80, 40, . . . , 10,

A 35   B 30   C 25   D 20   E 15

P2   What is the approximate height of an adult giraffe?

A 5 mm   B 5 cm   C 50 cm   D 5 m   E 5 km

Total marks

/ 25

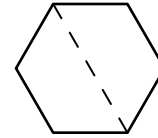**1.** The *Cloud Appreciation Society* is an international organisation with forty-three thousand and thirty-three members.

How should I write this number in figures?

A 40 333   B 43 033   C 403 033   D 4 300 033
E 40 300 033

2. Anna takes a regular hexagon and cuts it exactly into two halves as shown.

She will get two of which shape?

A triangle   B rhombus   C trapezium
D pentagon   E hexagon

3. Jess could see that someone had printed the word **BARBERZ** on the window.

How did it look from the other side of the window?

A ƸЯƎꓭЯAꓭ   B **ZREBRAB**   C **BⱯЯBEꓘƧ**   D **ZЯƎꓭЯAꓭ**
E ꓭAЯꓭƎЯƧ

4. How many times in 2017 will a working digital clock show the time of 20:17?

A 2   B 12   C 24   D 52   E 365

5. Which of these numbers is a multiple of three?

A 2017   B 2018   C 2019   D 2020   E 2021

6. For a party, Dolly buys 20 sweets at 15p each, Molly buys 25 sweets at 20p each, Polly buys 30 sweets at 25p each.
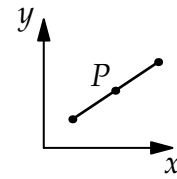
How much do they spend in total?

A £3   B £8   C £15
D £15.50   E £25.50

7. Sam's exam was meant to begin at 13:45 but started 17 minutes late.

At what time did it begin?

A 13:28   B 13:38   C 13:56   D 14:02   E 14:06

8. Nasreen draws a straight line from (2, 2) to (8, 6) on a graph. Point *P* is exactly halfway along the line.

What are the coordinates of point *P*?

   A (4, 5)   B (5, 4)   C (4, 4)   D (4, 6)   E (6, 4)

9. Betty Bott's beans each weigh 2.5 grams.

How many beans will Betty have in half a kilogram?

   A 25   B 40   C 50   D 100   E 200

10. Ms Plummet has organised rock climbing for her class at the local climbing centre. It costs £12.50 and 30 children pay to go.

What is the difference between the cost and the money she collects from the children?

   A £12.50   B £25   C £40
   D £53.50   E There is no difference

11. When Patience asked her Grandad how old he was, he answered, "I am 34 now and will be 33 on my birthday." She looked confused so he added, "After being 50 for a year I started counting backwards on each birthday."

How old will he actually be on his birthday?

   A 33   B 34   C 66   D 67   E 68

Total marks

/ 25

12. An octagonal piece of paper is folded in half twice as shown, and a hole is punched through the resulting folded shape.
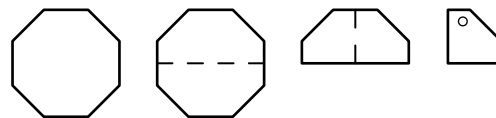
Which of the following does the piece of paper look like when it is unfolded?

   A   B   C   D   E

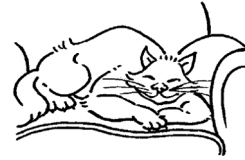**13.** I am twice the age of each of my sons, Barry and Larry. Our three ages have a total of 76.

How old is Barry?

   A $9\frac{1}{2}$ B 18   C 19   D 36   E 38

14. My cat snoozes for 50 minutes in each hour.

For how many hours a day does my cat snooze?

    A 5   B 10   C 15   D 20   E 50

15. Which of the following progress bars indicates 23.4 MB of 37 MB downloaded?

    A   B   C   D   E

16. Runaround Sue is orienteering. She goes 1 km North, then 2 km East, then 3 km South, then 4 km West.
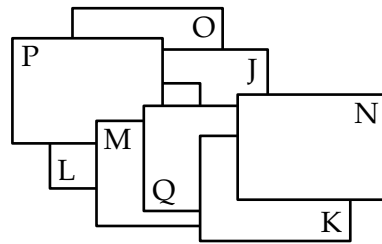
In what direction must she go to return to the start?

    A North East   B West   C North   D North West

    E East

17. The diagram on the right shows eight lettered pieces of paper.

In which order were the first seven pieces placed?

    A O L P M Q K   B L O J P M Q K

    C N M Q K P L J   D Q J Q P L K M

    E L J O P Q N K

18. I ate half an apple pie on Saturday and two thirds of the remainder on Sunday.

What fraction of the pie was left for Monday?

    A None   B $\dfrac{1}{2}$ C $\dfrac{1}{3}$ D $\dfrac{2}{3}$ E $\dfrac{1}{6}$

19. In which of these sets do all of the numbers give a remainder of 1 when divided into 2017?

   A 2, 3, 4, 5   B 3, 4, 5, 6   C 4, 5, 6, 7   D 5, 6, 7, 8   E 6, 7, 8, 9

20. My aunt Lotsa Cash has given me £200 to share between me and my five brothers.

What is the smallest sum of money I must give away so that I can share what is left equally among the six of us?

    A nothing   B 1p   C 2p   D 3p   E £2

please turn over for questions 21–25

21. The shape on the right is made of 4 long lines of equal length and 16 short lines of equal length. All the angles are right angles. The area of the shape is 144 cm^2.
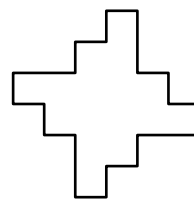
What, in centimetres, is the perimeter of the shape?

22. I wish to make a list that includes each of the numbers 1, 2, 3, 4, 5 and 6 exactly once so that at least one pair of numbers next to each other in the list has a product that is a multiple of 6.

How many different such lists can I make?

23. A *palindrome*, such as 303 or 8668, is a number that remains the same when read backwards.

What 3-digit palindrome can you add to 2017 and get a 4-digit palindrome as your answer?

24. On a pie-chart showing the flavours of packets of crisps in Aunty's cupboard, the angle for Plain Crisps was 90°. When Marco ate four packets of Plain Crisps and redrew the pie-chart, the angle for Plain Crisps had decreased to 60°.

How many packets are there now?

25. A rectangle has an area of 20 cm^2. If its length is reduced by 2.5 cm and its width is increased by 3 cm, the new shape is a square.

What is the perimeter of the square?