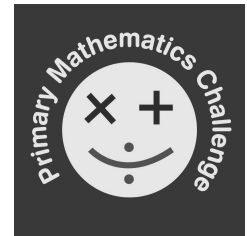


# Primary Mathematics Challenge

9 – 13 November 2020



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!

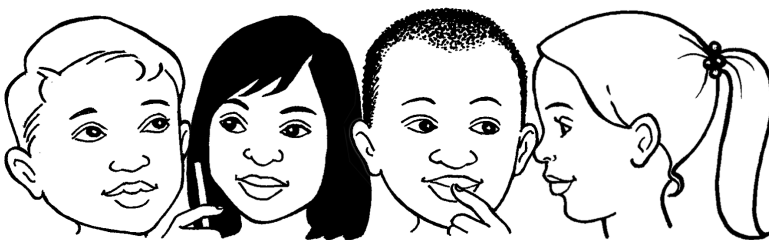
## Practice Questions

P1 Which of these shapes has exactly three straight edges?

- A  B  C  D  E 

P2 What is the value of  $20 \times 2$ ?

- A 0 B 10 C 22 D 40 E 202



Total marks

/ 25

MATHEMATICAL ASSOCIATION



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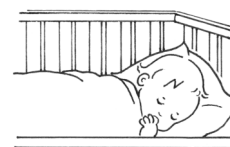
[www.primarymathschallenge.org.uk](http://www.primarymathschallenge.org.uk)

Printed on recycled paper 

1. Harry Potter was born on 31 July 1980.

How many years ago was that?

- A 10      B 20      C 30      D 40      E 50




2. Which of the following is closest to the length of my little finger?

- A 1 foot      B 2 km      C 3 mm      D 4 m      E 5 cm

3. Boastful Grandad says that he can walk 10 miles in 3 minutes. How likely is this?

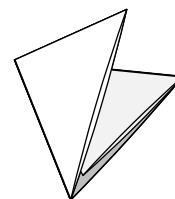
- A impossible      B unlikely      C possible  
D likely      E very likely




4. Chay Pup folds a regular hexagon along each of its diagonals. The result is the folded triangular shape shown on the right.

When it is unfolded and cut along all of the folds, how many triangular pieces will there be?

- A 2      B 3      C 4      D 5      E 6




5. The Simpsons go on their family summer holiday at midday on 22 August and return home at midday on 2 September.

How many nights are they away from home?

- A 11      B 12      C 13      D 14      E 15

6. Spike the hedgehog eats 8 slugs each day except on Sundays, when she eats 10 slugs.

How many slugs does she eat in one week?

- A 50      B 58      C 60      D 66      E 70

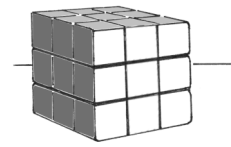



7. My baby sister is 1000 days old today.

How many years old will she be on her next birthday?

- A 3      B 4      C 5      D 10      E 12

8. On each face of a Rubik's Cube the 9 small squares are the same colour, and a different colour is used for each face. One face has 9 white squares.




How many squares on the surface of the cube are not white?

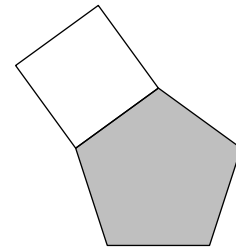
- A 18      B 27      C 36      D 45      E 54

9. Postie Patricia delivers letters to all of the **odd**-numbered houses in a street.

If she starts at number 1 and finishes at number 29, how many houses has she visited?

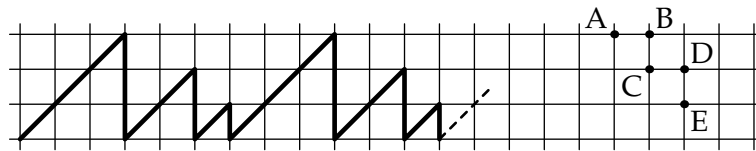
- A 14      B 15      C 16      D 17      E 18

10. The diagram shows a pentagon with a square placed edge to edge with it. George places another square on each of the other four edges of the pentagon.




How many outside edges does the combined shape now have?

- A 13      B 14      C 15      D 16      E 17

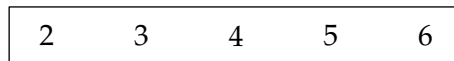


11. Linus has drawn this pattern on graph paper.

When he continues the same pattern, which of the points A, B, C, D or E will his line go through?

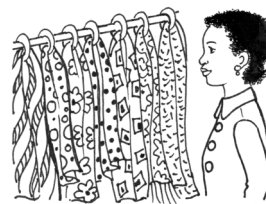
- A                  B                  C                  D                  E

12. How many of the numbers in the box below are factors of 2020?




- A 2                  B 3                  C 4                  D 5                  E 6

13. Last week my maths teacher said that today she would be wearing a new scarf. Kiran thought it would be red and plain, Lila suggested blue and stripy, while Manul was sure it would be red and flowery. Each of them was correct in stating **either** the colour **or** the pattern of the scarf.




Which of the following describes my teacher's scarf?

- A blue and flowery      B plain blue      C red and flowery  
 D plain red      E red and stripy

14. I am about to start my day.  
 In which order should I carry out the following instructions?

- D = dry yourself      G = get out of bed      P = put on clothes  
 T = take a shower      W = wake up

- A **WDGPT**      B **PDTWG**      C **GDTPW**  
 D **WGTDP**      E **PTDGW**

15. Marge Rine has a cube of butter with sides of 4 cm.  
 She spreads all the butter evenly on her piece of toast which is 8 cm by 10 cm. [Then she adds the jam.]




How thick is the butter on the toast?

- A 2 mm      B 4 mm      C 8 mm      D 1 cm      E 4 cm

16. The Royal Society for the Protection of Birds (RSPB) planted 12 000 trees at Dovestone Reservoir in the Peak District in 32 days, with the help of 15 volunteers.

If all the volunteers worked on their own at the same speed, how many trees on average did each volunteer plant each day?

- A 12      B 16      C 20      D 25      E 32

17. A rectangular piece of paper is folded in half to form a square.

The area of the square is  $36 \text{ cm}^2$ .

What is the perimeter of the original rectangle?

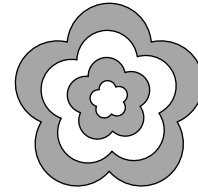
- A 9 cm      B 18 cm      C 36 cm      D 72 cm      E 144 cm

18. The diagram shows **four** overlapping flower shapes.

The areas of the shapes are  $4\text{ cm}^2$ ,  $9\text{ cm}^2$ ,  $16\text{ cm}^2$  and  $25\text{ cm}^2$ .

What is the total shaded area in  $\text{cm}^2$ ?






- A 13      B 14      C 15      D 16      E 17












19. In 2010 about 120 million *digital still cameras* were sold worldwide. By 2018 this number had decreased by 85%.

About how many million digital still cameras were sold in 2018?

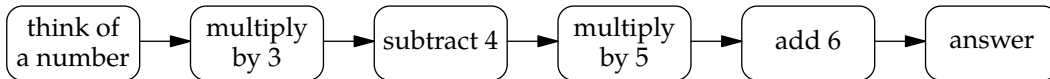
- A 18      B 28      C 38      D 48      E 58

20. Murben knows that, in some order, the symbols , , ,  and , stand for the numbers five, six, seven, eight and nine in the Cnujian language. She also knows that:

 is greater than ,  is less than ,  is greater than , and  is greater than .

Which of these Cnujian symbols represents the number 5?

- A       B       C       D       E 

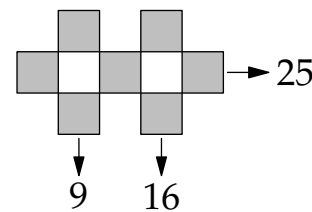


21. Marcia thinks of a positive whole number, and puts it into the number machine above.

What is the largest two-digit number that she could obtain as an answer?

22. The numbers 1 to 9 are each placed in one of the squares in the diagram.

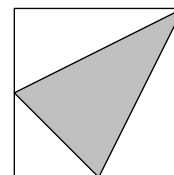
The three numbers in each of the two vertical rectangles add up to 9 and 16 respectively, and the five numbers in the horizontal rectangle add up to 25.



What is the total of the numbers in the seven shaded squares?

23. Oranges cost 26p each and lemons cost 30p each.  
 Gordon spent exactly £5 on a mixture of oranges and lemons.  
 How many oranges and lemons altogether did he buy?

24. The diagram shows a square and a triangle.  
 The triangle is formed by a corner and the midpoints  
 of two sides of the square.  
 The area of the triangle is  $150 \text{ cm}^2$ .  
 What is the perimeter of the square in centimetres?




25. Alun wrote each of the numbers from 1 to 160 on cards and arranged them in  
 10 rows of 16 cards each.

1	2	3	4	5	...	15	16
17	18	19	20	21	...	31	32
33	34	35	36	37	...	47	48
⋮	⋮				⋮	⋮	
129	130	131	132	133	...	143	144
145	146	147	148	149	...	159	160

Alun

1	11	21	31	41	...	141	151
2	12	22	32	42	...	142	152
3	13	23	33	43	...	143	153
⋮	⋮				⋮	⋮	
9	19	29	39	49	...	149	159
10	20	30	40	50	...	150	160

Bree

Bree picked up the cards and arranged them in 16 columns of 10 cards each.  
 As shown, the cards with the numbers 1 and 160 were in the same place as  
 before. Two other cards were also in the same place as in Alun's arrangement.  
 What is the smaller of the numbers on these two cards?