

# PRIMARY MATHEMATICS CHALLENGE



7 – 18 November 2022

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 Calculate  $1 + 10 + 100$  ?

- A 3      B 11      C 110      D 111      E 300

P2 How many squares are there here?



- A 1      B 2      C 3      D 4      E 5

MATHEMATICAL ASSOCIATION



Supporting mathematics in education

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**TOTAL MARKS**

**/25**

# PRIMARY MATHEMATICS CHALLENGE

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1. What is the smallest number of coins which will make 8p?

A 3

B 4

C 5

D 6

E 8

2. It costs 20p to charge my electric scooter which can then travel 25 miles.  
How much would it cost if this scooter travelled 100 miles?

A 80p

B £1

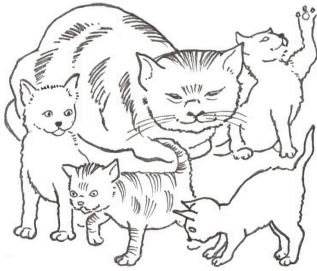
C £2

D £4

E £6



3. Tilly the cat and her 4 kittens each eat 3 cat treats every day.  
How many treats altogether do they eat in one day?



A 6

B 7

C 15

D 20

E 21

4. Chippy the seagull is flying east. Sadly, he is knocked by another seagull which spins him 180° clockwise. What direction is Chippy now facing?



A east

B north

C north-east

D south

E west

5. Ringa Bell takes 20 minutes to cycle to school, which is a mile from her home.  
What is her average cycling speed?



A 2 mph

B 3 mph

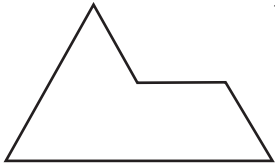
C 4 mph

D 5 mph

E 6 mph

# PRIMARY MATHEMATICS CHALLENGE

6.



This shape, called a sphinx, is made of equilateral triangles, all the same size.  
How many of these triangles are needed to make this sphinx?

A 2

B 4

C 6

D 8

E 10

7. A Pet Rescue Home has the same number of parrots, cats and dogs.

When the owner of the home looks at all of her pets, she can see 30 legs.

How many cats are there?



A 2

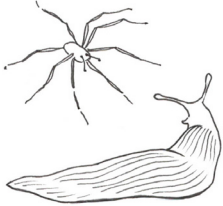
B 3

C 4

D 5

E 6

8.



The spider and the slug love each other. They are 44 cm apart. The spider runs towards the slug at 7 cm/sec and the slug slides towards the spider at 4 cm/sec.  
How long is it before they meet?

A 2 sec

B 3 sec

C 4 sec

D 12 sec

E 60 sec

9. My maths teacher Addum Kwicky has 18 socks (9 pairs of socks).

He puts on clean socks every three days.

How many days can he wear these socks before he has to wash them all?



A 12

B 18

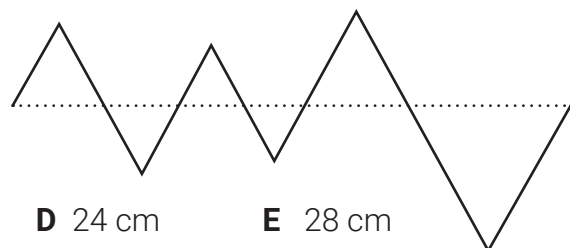
C 21

D 27

E 36

10. In the figure below, the triangles are all equilateral. The dotted line is 12 cm long.

How long in total is the zigzag line?



A 12 cm

B 16 cm

C 18 cm

D 24 cm

E 28 cm

# PRIMARY MATHEMATICS CHALLENGE

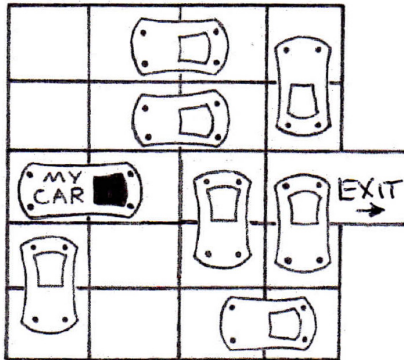
11. Choco Holic likes packets of *Niblets*<sup>™</sup>.

Which offer gives him the cheapest *Niblets*<sup>™</sup>?



- A** 1 for the price of 2      **B** 2 for the price of 2      **C** 3 for the price of 2  
**D** 4 for the price of 2      **E** 5 for the price of 2

12.



In this car park problem, cars can only go forwards and backwards.

What is the smallest number of cars that I have to move before

I can drive my car straight out of the car park?

- A** 3      **B** 4      **C** 5      **D** 6      **E** 7

13. The digits of the year 2022 total 6.

How many years will it be until this happens again?

- A** 6      **B** 7      **C** 8      **D** 9      **E** 10

14. A snack bar contains 7.5 g of sugar. It is recommended that children aged 10 have at most 24 g of sugar daily. How many of these snack bars could you eat and not exceed this limit?

- A** 1      **B** 2      **C** 3      **D** 4      **E** 5

15. Which is the cheapest price for Seerat's phone contract for a year?

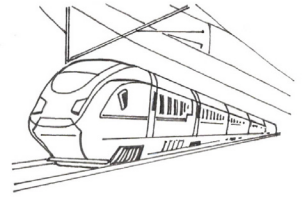


- A** £50 for 6 months      **B** £26 for 3 months  
**C** £18 for 2 months      **D** an annual payment of £120  
**E** a monthly payment of £9

# PRIMARY MATHEMATICS CHALLENGE

16. Dr B Ching says that a train travelling at an average speed of 50 mph can complete a journey in 3 hours.

How long will it take a high-speed train travelling at an average speed of 150 mph to complete the same journey?



- A 36 min    B 40 min    C 45 min    D 1 hour    E 80 min

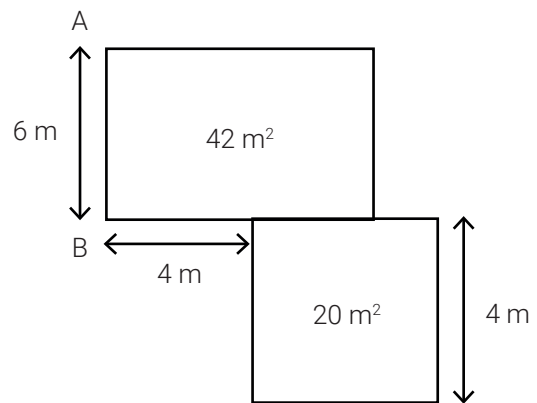
- 17.



Mrs Cox has an apple orchard and enjoys sorting out her apples. She can either put all her apples into bags of 4 with no apples left over, or she can put all her apples into bags of 5, with no apples left over. Which of the following could be the number of apples she has?

- A 88    B 92    C 108    D 112    E 120

18. The diagram shows a plan of two adjoining rooms. Some of the lengths and the areas are given. What is the perimeter of the combined shape?



- A 36 m    B 38 m    C 41 m    D 42 m    E 45 m

19. What answer do you get if you add these mega fractions correctly?

$$\frac{33333333}{99999999} + \frac{44444444}{88888888} + \frac{11111111}{66666666}$$

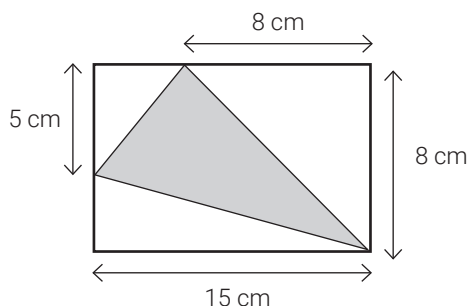
- A  $\frac{8888888888}{232323232323}$     B  $\frac{8}{23}$     C  $\frac{5}{6}$     D 1    E 72

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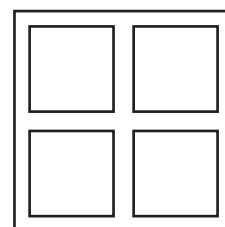
20. The average person can hold their breath for 30 seconds, but the world record belongs to Budimir Šobat who held his breath for 24 minutes and 37.36 seconds. How long in seconds is this, when rounded to the nearest second?

A 1440      B 1475      C 1476      D 1477      E 1480

21. What is the area of the shaded triangle contained within the rectangle?

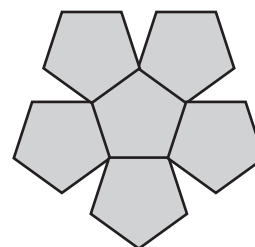



22. Manjeet is making a photo frame out of one long piece of wood to hold four square photos, as shown. The four squares for the photos each measure 15 cm by 15 cm and the piece of wood is 2 cm wide. What is the total length of wood that Manjeet will use?

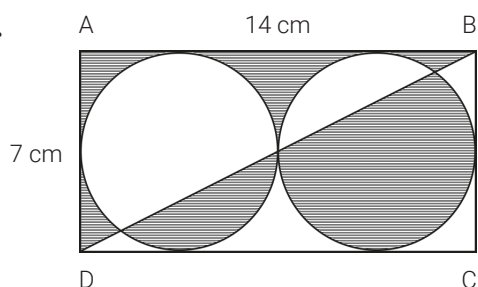



23. In a class, 75% of the children like netball. 60% of the children who like netball also like tennis. What percentage of the children like both netball and tennis?

24. Penny is pretty pleased with the pattern she has produced by placing regular pentagons next to each other. Tristan points out that there are acute angles between the outer pentagons. What is the size of these acute angles?




25. The rectangle ABCD measures 14 x 7 cm. There are two identical sized circles which just touch the sides of the rectangle and the other circle. There is a diagonal BD.



What is the total area of the shaded part in the diagram?