Primary Mathematics Challenge

8 – 12 November 2021

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!

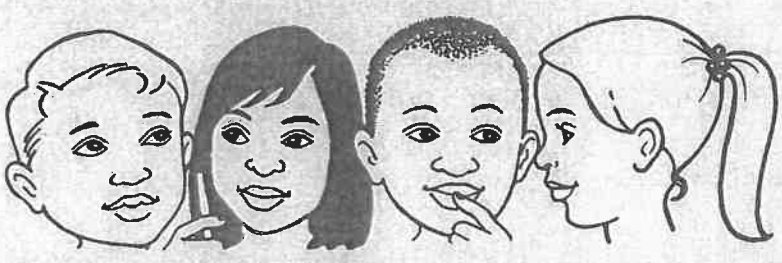
Practice Questions

P1 What is the value of $2+0+2+1$?

A 1 B 2 C 3 D 4 E 5

P2 Which of these shapes is **not** a rectangle?

A B  C  D  E 



Total marks

/ 25

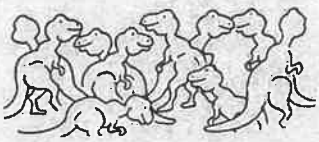
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1. I buy 10 plastic dinosaurs at 99p each and give the shopkeeper a £10 note.



How much change should I receive?

A 1p B 10p C £1 D £10 E £100

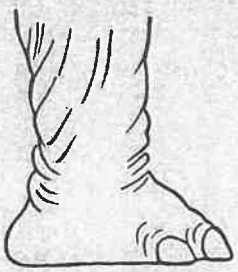
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2. Which of the following is closest to the length of a car?

A 4 mm B 40 cm C 4 m D 40 m E 4 km

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3. An elephant's height is about twice the circumference of one of its feet.
The circumference of one of Nellie's foot is 150 cm.



About how tall is she?

A 350 mm B 2 m C 3 m
D 4 m E 450 cm

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4. Emma decided to paint on her bedroom wall the 11 letters of the word

MATHEMATICS

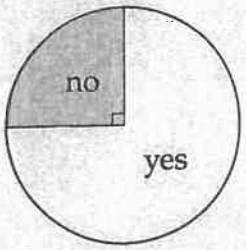
During a school holiday, she painted one letter each day.
She finished on a Friday.

On which day of the week did she paint the first letter?

A Monday B Tuesday C Wednesday
D Thursday E Friday

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5. The pie chart on the right shows the numbers of pupils who answered the question "Is there life in Outer Space?" with a "yes" or "no".
There were 21 pupils who answered "yes".



How many pupils answered "no"?

A 4 B 5 C 6 D 7 E 8

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6. On the first day of this month, the sun rose at Greenwich at 06:54 and set 9 hours and 40 minutes later.

At what time did the sun set?

A 15:34 B 15:54 C 16:34 D 16:54 E 21:34

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7. Hannah places a mirror after the word SWIMS like this:

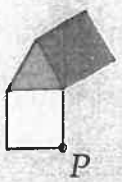
SWIMS | _ _ . _ _

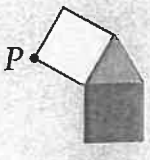
What would the reflection look like in the mirror?

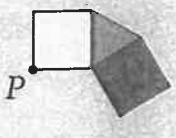
A ƧWIMƧ B ƧMIWƧ C SMIWS D ƧMIWƧ E SWIMƧ

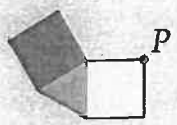
8. The shape on the right is rotated 90° clockwise about the point P.

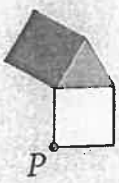
Which of the following shows the shape as it now looks?

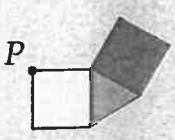


A 

B 

C 

D 

E 

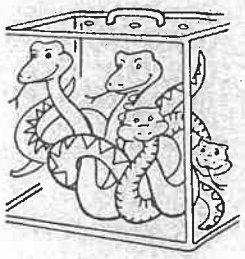
9. Farmer Baar has 36 sheep, some pink and the rest white.
There are twice as many pink sheep as white sheep.

How many of the sheep are pink?

A 10 B 12 C 20 D 24 E 30

10. Sir Pent has a tank with 4 snakes in it.
Slither is twice as long as Monty.
Viper is half as long as Slither.
Rattle is 15cm long, and half the length of Viper.

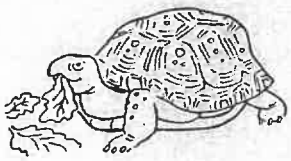
How long is Monty?



A 15 cm B 30 cm C 45 cm D 60 cm E 75 cm

11. Jonathan the tortoise eats 20 g of salad leaves a day.
The leaves are sold in 80 g bags which cost 90p.

How much would it cost to feed Jonathan for 4 weeks?



A £4.20 B £4.80 C £5.30 D £5.70 E £6.30

12. Pat and Sam like to sit at either end of their sofa, with their three children sitting between them.



In how many ways can they do this?

A 6 B 12 C 24 D 25 E 130

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13. Mr Waddle walks at 2 mph and Mr Ramble walks at 4 mph. They set off together for a non-stop 12 mile hike.

How long after Mr Ramble finishes does Mr Waddle complete the hike?

A 1 hour B 3 hours C 4 hours D 6 hours E 12 hours

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14. I add together three consecutive whole numbers.

Their sum is **always**

A a multiple of 5 B odd C prime
D even E a multiple of 3

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15. Miss Fitt likes to line her class up in different ways. When all the pupils are there she can line them up in twos, or in threes or in fives, with nobody left over.

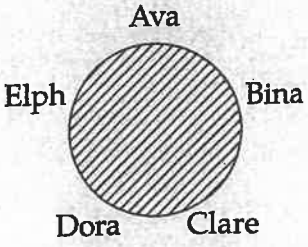
What is the smallest number she could have in her class for that to be true.

A 60 B 45 C 30 D 20 E 15

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16. Five girls are sitting around a table. Each girl makes a "high five" with each of the other girls.

How many "high fives" are made?



A 10 B 15 C 20 D 25 E 50

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17. Isaac is 53 years old. His mother is 81.

How many years ago was Isaac's age one third of his mother's age then?

A 29 B 31 C 34 D 37 E 39

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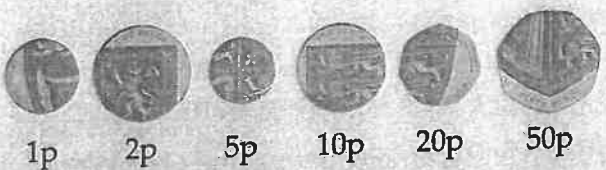
please turn over for questions 18–22

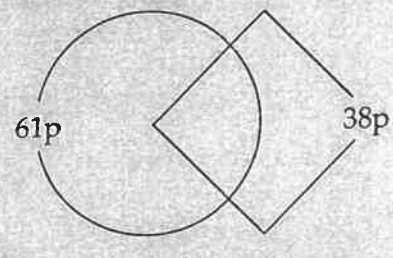
18. The floor of Milo's rectangular bedroom is completely covered with square carpet tiles.
When he measures the room in tiles, he finds it is 11 tiles long and 8 tiles wide.

How many of the carpet tiles do **not** touch the walls?

A 34 B 38 C 50 D 54 E 88

19. Penny has one of each of the coins 1p, 2p, 5p, 10p, 20p and 50p. She places each of them inside the shapes on a diagram like the one shown here.



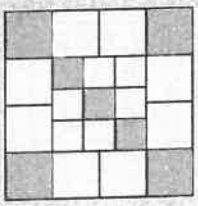


The money in the circle amounts to 61p and the money in the square amounts to 38p.

Which two coins go in the overlapping region?

A 10p and 1p B 20p and 1p C 10p and 2p
D 50p and 2p E 2p and 1p

20. The large square shown is divided into smaller squares.

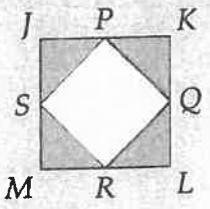


What fraction is shaded?

A $\frac{1}{3}$ B $\frac{5}{12}$ C $\frac{3}{7}$ D $\frac{4}{9}$ E $\frac{1}{2}$

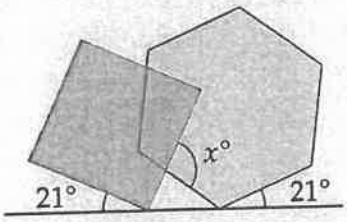
21. $JKLM$ is a square.
Another square $PQRS$ touches the midpoint of each of the sides of $JKLM$.
The perimeter of $JKLM$ is 48 cm.

What is the area of triangle RMS in square centimetres?



22. The diagram shows a square and a regular hexagon touching a straight line and overlapping.

What is the size of the angle marked $x°$?



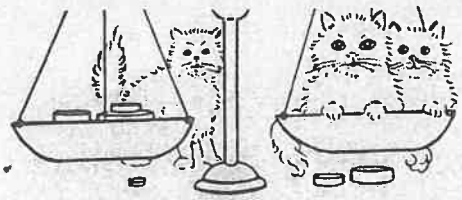
please turn over for questions 23–25

23. More than 60% but less than 65% of the spiders in my cupboard have hairy legs.

What is the smallest number of spiders that could be in my cupboard?

24. Three cats, Flopsie, Lopsie and Topsie, were weighed in pairs.
The weights of each of the three pairs were 5 kg, 8 kg and 9 kg.

What was the weight of the heaviest cat?



25. Tabitha writes down a four-digit number N.
She then rubs out one of the digits and creates a new three-digit number, M, with the three digits that are left (in the same order as before).
The difference between N and M is 2021.

What is Tabitha's original number N?

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