

PRIMARY MATHEMATICS CHALLENGE

BONUS PAPER 6th – 10th February 2023



NAME **CLASS**

Please do not start to answer the 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.

Write down A B C D or E in the space for each answer.
Each correct answer gains one mark.

Good Luck. Enjoy the challenge!



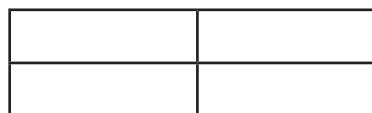
Practice Questions

P1 Mega Saurus is 600 cm tall. Dyna Saurus is 450 cm tall.
How much taller is Mega than Dyna?



- A** 50 cm **B** 100 cm **C** 150 cm **D** 200 cm **E** 250 cm

P2 How many rectangles can be found in this diagram?



- A** 4 **B** 5 **C** 7 **D** 8 **E** 9

MATHEMATICAL ASSOCIATION



Supporting mathematics in education

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TOTAL MARKS

/25

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1. Pepper the Cat sleeps for 20 hours a day. What fraction of the day is she awake?

A $\frac{1}{6}$ B $\frac{2}{6}$ C $\frac{3}{6}$ D $\frac{4}{6}$ E $\frac{5}{6}$



2. An apple, a pear and a peach cost 100p. An apple, a pear and two peaches cost 140p. How much does a peach cost?

A 10p B 20p C 22p D 24p E 40p

3. Addum thinks of a number, adds 6 to it, subtracts 4 and adds 3. He then subtracts the number he first thought of. What will his answer always be?

A 5 B 6 C 7 D 8 E 9



4. Rohit drew a quadrilateral. Three of its angles measured 120° , 120° and 80° . What sort of quadrilateral could Rohit have drawn?

A kite B parallelogram C rectangle D rhombus E trapezium

5. I walk for 6 miles at 3 mph and then run home at twice this speed. How long did my journey there and back last?

A 45 min B 1 hr 30 min C 1 hr 45 min D 2 hr 15 min E 3 hr



6. Gulpa Chaar makes two cups of tea from each of her tea bags. Her husband makes three cups from each of his tea bags. They each drink 30 cups of tea a week. Exactly how many tea bags do they use each week?

A 12 B 20 C 25 D 30 E 60



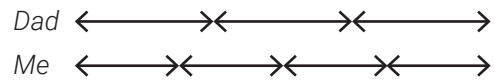
7. 10 teachers take 10 minutes to mark a total of 10 books, all marking at the same speed. How long does it take 1 teacher to mark 1 book?

A 6 seconds B 1 min C 2 min D 5 min E 10 min

8. Ben is putting rulers into packets all containing the same number of rulers. He has just got to the 37th ruler, and is working on packet 7, when his telephone rings. How many rulers does the fourth packet contain?

A 6 B 8 C 10 D 12 E 14

9. My dad is 180 cm tall and is lying down.
Three of his lengths are the same as four of mine.
How tall am I?



- A** 80 cm **B** 100 cm **C** 120cm **D** 135 cm **E** 140 cm

10. Simone and James each bought identical action figure toys from the same shop. Simone bought hers on Tuesday when there was 10% off the original price. James bought his on Sunday when there was 15% off the original price. Simone paid 45 pence more than James. What was the original price of the action figure toys?

- A** £4.50 **B** £5 **C** £9 **D** £10 **E** £90

11. What is the difference in value between 2^4 and 4^2 ?

- A** 0 **B** 1 **C** 2 **D** 4 **E** 8

12. After each round of a knockout netball competition the losing teams drop out until just the winner remains. How many games are played to complete a competition when there are eight teams to begin with?

- A** 4 **B** 6 **C** 7 **D** 8 **E** 12



13. Robyn buys a parrot for £50 and sells him for £60.
Later she buys her parrot back for £70 and then sells him again for £80.
How much profit has she made altogether?

- A** £0 **B** £5 **C** £10 **D** £20 **E** £50



14. It is possible to rearrange the letters of the word *TIME* to make lots of four letter words, most of them nonsense words. In total how many words can you make from these four letters?

- A** 4 **B** 6 **C** 12 **D** 24 **E** 120

15. A very large box contains 4 large boxes and each of the 4 large boxes contains 2 small boxes.
Each of the small boxes contains 4 tiny boxes.

How many boxes are there in total?

- A** 32 **B** 36 **C** 40 **D** 42 **E** 45



16. Maud is making mud pies. For every 20 g mud she uses, she adds an extra 25 g slime and 5 g sand. Altogether, Maud makes 1 kg of mud pies.
How much mud does she use?

- A** 20 g **B** 40 g **C** 50 g **D** 200 g **E** 400 g

17. What is the area of a square whose diagonal measures 12 cm?

- A** 24 cm^2 **B** 36 cm^2 **C** 60 cm^2 **D** 72 cm^2 **E** 144 cm^2

18. What is the angle between the minute hand and the hour hand of a clock which shows the time as half past two?

- A 90° B 100° C 105° D 110° E 120°

19. Alice wants to provide a security guard for a bank, 24 hours a day, seven days a week for 80 days. Each guard will work for twelve hours a day for four days and then have four days off work. What is the smallest number of guards she will need?



- A 2 B 3 C 4 D 5 E 6

20. What number is this?

*When multiplied by 8, it's a multiple of 3. When divided by 9, it's as prime as can be.
When doubled contains a 3 or a 1. When halved it's a square, but a 4, it has none.*

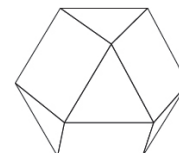
- A 9 B 13 C 17 D 18 E 27

21. Find the value of the following,

$$\sqrt{\frac{\text{number of degrees in a right angle}}{\text{number of mm in a metre}}}$$

- A 0.1 B 0.3 C 0.9 D 1 E 3

22. A cuboctahedron is a 3-D shape with 6 square faces and 8 equilateral triangular faces. Each square face is surrounded by triangles and each triangular face is surrounded by squares. How many edges does a cuboctahedron have?



- A 12 B 24 C 25 D 48 E 50

23. What is the sum of all the whole numbers from 1 to 100?

- A 101 B 1000 C 5000 D 5050 E 10100

24. There are 200 pupils at Pythagoras Primary School, split into seven classes: Reception, Year 1, Year 2, Year 3, Year 4, Year 5 and Year 6.

Three classes have exactly 30 pupils, but no class has more than 30 pupils. Reception, Year 2 and Year 6 all have one fewer pupil than Year 1. Year 4 has more pupils than Year 3.

How many pupils are there in Year 3?

- A 23 B 24 C 25 D 26 E 27

25. A multiplication table has been encrypted with letters. The letters W, X, Y and Z represents different digits.

From which times table could these two facts be true? $W \times W = XW$ and $Y \times W = ZW$.

- A 5 B 6 C 7 D 8 E 9