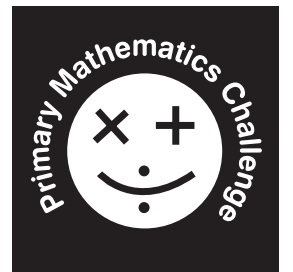


Primary Mathematics Challenge

17-21 November 2014



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.

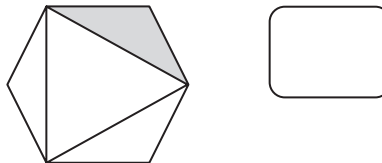
You must do all the work on your own. You should use rough paper for this.

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!

18 The diagram shows a regular hexagon with an equilateral triangle inside it. What fraction of the area of the hexagon is shaded?

A $\frac{1}{2}$ B $\frac{1}{3}$ C $\frac{2}{5}$ D $\frac{1}{6}$ E $\frac{1}{12}$



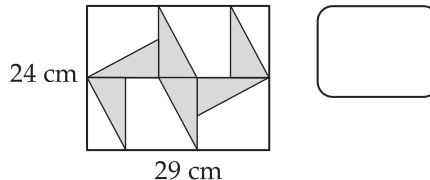
19 Amy, Ben, Cleo, Dipesh and Emil each has a tin of biscuits. There are 60 biscuits in each tin. Amy eats 60% of a tin, Ben eats 48 biscuits, Cleo eats half a tin, Dipesh eats $\frac{5}{6}$ of a tin, and Emil eats 0.75 of a tin. Who eats the most biscuits?

A Amy B Ben C Cleo D Dipesh E Emil

20 Lorna Mower mows 4 small fields in 1 hour and 5 large fields in 1 hour 40 minutes. How much longer does it take her to mow 7 large fields than 7 small fields?

A 35 min B 49 min C 70 min D 105 min E 140 min

21 Six identical right-angled triangles fit inside a rectangle as shown in the diagram. The rectangle measures 24 cm by 29 cm. What is the total shaded area in cm²?




22 Last year Gareth was 13 times older than his son Herbie. This year Gareth is 10 times older than Herbie. In how many years' time will Gareth be 7 times Herbie's age?

23 In the subtraction calculation shown here I want to put each of the digits 1, 2, 3, 4, 5, 6 into one of boxes J, K, L, M, N or O, so that the answer to the subtraction is as small as possible but not negative. In which box do I have to put the digit 6?

J K L
M N O
□ □ □
- □ □ □

24 In 1588 an Italian mathematician called Pietro Cataldi discovered that $2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 - 1$ (in short, $2^{19} - 1$) is a prime number. When this number is divided by 5, what is the remainder?

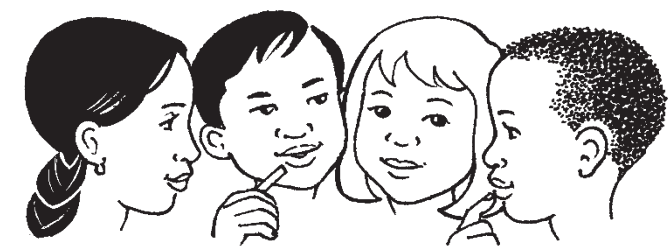
25 Twelve points are arranged as shown on the right. How many rectangles (including squares, of course) can be made by joining four of these points?



Practice Questions

P1 If one half of a number is 9, what is the number?
A 1 B 9 C 18 D 45 E 81

P2 Which of the following best describes the height of most of the teachers at your school?
A between 1 m and 3 m B between 3 m and 5 m
C between 5 m and 7 m D between 7 m and 9 m
E between 9 m and 11 m



Total mark

 / 25

Primary Mathematics Challenge 2014

1 What is the answer to $1111 + 111 + 11 + 1$?

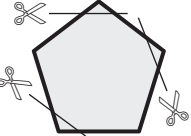
A 1111 B 1212 C 1234 D 4321 E 4444

2 I buy three sweets at 20p each and twenty sweets at 3p each. What is the total cost?

A 6p B 23p C 40p D 60p E £1.20

3 If you cut off three of the corners of a pentagon as shown in the diagram, you will get three triangles and one other shape. Which of the following shapes will this be?

A square B trapezium C hexagon D octagon E dodecagon




4 Jana bought four copies of the book *Aftermaths*. The total cost was £27. Which of the following calculations gives the cost of one book in pounds?

A $27 \div 4$ B $4 \div 27$ C $27 - 4$ D 4×27 E $4 + 27$

5 Albert Einstein was born on 14 March 1879. How old was he in November 1914?

A 14 B 21 C 35 D 53 E 79




6 Bognor Rocks FC have a total of 15 points after 6 matches. In their league teams get 3 points for a win, 1 point for a draw and 0 points for a defeat. How many defeats did they have?

A 0 B 1 C 2 D 3 E 5

7 I have ridden my bike for 20 minutes at 12 miles per hour. How many miles have I cycled in that time?

A 1 B 2 C 4 D 12 E 20

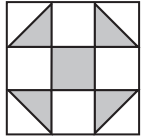


8 The sum of the digits of 2014 is a prime number. How many years will it be until the sum of the digits of the year is again a prime number?


A 2 B 4 C 6 D 7 E 9

9 What fraction of the whole square is shaded?

A $\frac{1}{2}$ B $\frac{1}{3}$ C $\frac{1}{4}$ D $\frac{1}{5}$ E $\frac{5}{13}$



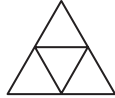
10 Joe Kerr played a trick on his teacher. He changed all the 1s on the board to 7s and all the 7s to 1s. Joe's **altered** versions are shown below. Which of the original calculations had the smallest answer?



A 1×11 B 1×17 C 1×71 D 7×17 E 7×77


11 I have 4 equilateral triangles. Each of them has a perimeter of 15 cm. I fit all of them together to make one large equilateral triangle, as shown. What will the perimeter of the large triangle be?

A 15 cm B 30 cm C 40 cm D 50 cm E 60 cm



12 I am on the top of a helter-skelter facing east. The chute will turn me anti-clockwise through 630° . In which direction will I be facing at the bottom?

A south B east C north D west E north-west

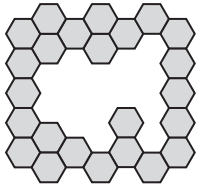


13 G.O. Metric drew a quadrilateral with two pairs of equal sides but only one pair of equal angles. Which of the following polygons could it have been?

A square B rectangle C parallelogram D kite E trapezium

14 A wall was tessellated with hexagonal tiles. However, some have fallen off in the middle, as shown. How many have fallen off?

A 14 B 15 C 16 D 17 E 18




15 If the day before the day before yesterday was Thursday, what is the day after the day after tomorrow?

A Saturday B Sunday C Monday D Tuesday E Wednesday

16 A slug called Glug eats 2 tomatoes for every 3 strawberries. Yesterday it had eaten 35 tomatoes and strawberries altogether. How many tomatoes did it eat?

A 5 B 7 C 14 D 15 E 21

17 Gwen is standing directly behind her brother Huw in a single-file line. There are 11 people in front of her and 12 people behind him. How many people are there altogether in the line?



A 21 B 22 C 23 D 24 E 25