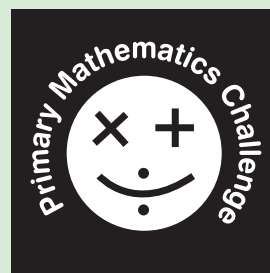


# Primary Mathematics Challenge Bonus Paper



4 February 2015

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 your working out.

Write down A B C D or E in the space for each answer. When you have finished, **use a B or an HB pencil** to copy your answers onto the OMR sheet, which will be sent in for marking.

You will get one mark for each correct answer.

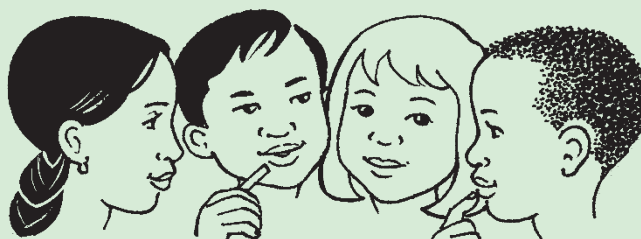
## Practice Questions

P1 A pencil and a ruler together cost £1.60.  
How much does the ruler cost?

A nothing    B 40p    C 60p    D 80p    E we cannot tell

P2 In a room full of cats, I counted 32 paws.  
No cat had any paws or tails missing, and no cat had extra paws or tails.  
How many tails should I have counted?

A 4    B 8    C 16    D 24    E 32

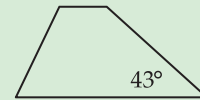


## Primary Mathematics Challenge Bonus Paper 2015

- 1 Felix and Marmalade are two cats. Together they weigh 10 kg.  
Felix weighs 4 kg less than Marmalade. How much does Marmalade weigh?

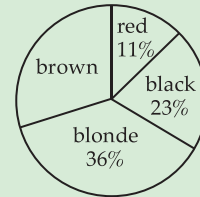
A 3 kg      B 6 kg      C 7 kg      D 9 kg      E 14 kg

- 2 One of the angles in a trapezium is  $43^\circ$ .  
What is the sum of the three remaining angles?



A  $137^\circ$       B  $180^\circ$       C  $227^\circ$       D  $270^\circ$       E  $317^\circ$

- 3 The results of a survey of the hair colour of 800 people are shown in this pie chart.  
How many people had brown hair?



A 200      B 210      C 220      D 230      E 240

- 4 The places you might expect to find certain butterflies are moving north by about 5 metres each day, perhaps because of climate change. Roughly how far northwards will such butterflies have moved in one year?

A 5 m      B 60 m      C 260 m      D 365 m      E 1.8 km

- 5 Dinosaur experts have calculated that *Tyrannosaurus rex* weighed about the same as 200 ten-year-old children.  
Which of the following is approximately the weight of *T. rex*?



A 64 kg      B 640 kg      C 6400 kg      D 64 000 kg      E 640 000 kg

- 6 Here is a number machine that always gives the same answer.  
What is that answer?



A 0      B 17      C 19      D 56      E 5678

- 7 Veronica rolls three six-sided dice. The product of the three numbers is 90.  
What is the sum of the three numbers?

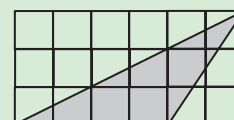
A 10      B 14      C 18      D 90      E more information is needed

- 8 The numbers in three of the options below can be added to make the number in one of the other options. Which number is not needed in this?

A 173      B 56      C 25      D 118      E 37

- 9 What fraction of the rectangle is shaded?

A  $\frac{1}{3}$       B  $\frac{1}{4}$       C  $\frac{2}{5}$       D  $\frac{3}{8}$       E  $\frac{2}{9}$



- 10 At 10am exactly, Clara, Lara and Amara all hiccup together. Clara then hiccups every 20 seconds, Lara every 30 seconds and Amara every 50 seconds. When do they next hiccup all together?

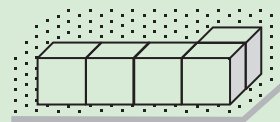



A 10.01 am    B 10.02 am    C 10.03 am    D 10.05 am    E 10.06 am

- 11 The clock is showing 11 am now. When the hour hand has turned through  $165^\circ$ , what time will it be?

A 11.30 am    B 12.30 pm    C 4.30 pm    D 5.30 pm    E 11.30 pm

- 12 I have five cubes, all of the same size. I glue them together to form an 'L' shape and place this shape on a table, as shown. I then paint all of the faces that I can see. How many of the original faces do I paint altogether?



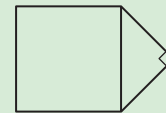

A 16    B 17    C 18    D 19    E 20

- 13 Rob the burglar and Nick the policeman spot one another 100 m apart. Rob runs away at 8 km/hr and, at the same time, Nick starts chasing him at 12 km/hr. If they both keep running at these speeds, how long will it take for Rob to be nicked?




A 90 sec    B 1 min    C 3 min    D 4 min    E 15 min

- 14 In the diagram, a right-angled isosceles triangle is joined to one side to a square. The perimeter of the square is 40 cm. What is the area of the triangle in  $\text{cm}^2$ ?




A 10    B 25    C 30    D 40    E 50

- 15 6 small eggs weigh the same as 5 medium eggs.  
6 medium eggs weigh the same as 4 large eggs.  
How many small eggs would weigh the same as 5 large eggs?

A 5    B 6    C 8    D 9    E 12

- 16 Wily Wizard was making a magic potion by mixing 350 ml of spit with 150 ml of venom. How much more venom would need to be added to achieve a ratio of spit to venom of 7 : 4?




A 25 ml    B 50 ml    C 100 ml    D 150 ml    E 200 ml

- 17 The diagram shows a regular hexagon with an equilateral triangle inside it. What is the size of the angle marked?




A  $12^\circ$     B  $15^\circ$     C  $20^\circ$     D  $30^\circ$     E  $60^\circ$

18 For one of the cubes shown below, the number of  $\text{cm}^2$  for its surface area is the same as the number of  $\text{cm}^3$  for its volume. For which cube is that true?

not to scale

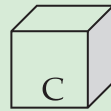
side length



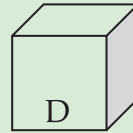
2 cm



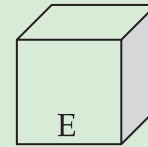
3 cm



4 cm



5 cm

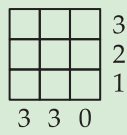
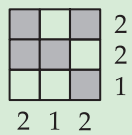


6 cm

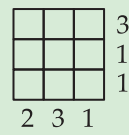
19 Daisy plants 2 daisies for every square centimetre in her field which has an area of  $50 \text{ m}^2$ . How many daisies does Daisy plant?

- A 100      B 1000      C 10 000      D 100 000      E 1 000 000

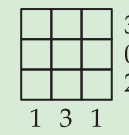
20 In the first grid below, each number at the end of a row or underneath a column indicates how many squares are shaded in that row or column. Which one of the following possibilities could arise from a similar grid?



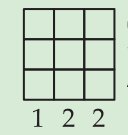
A



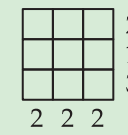
B



C



D



E

21 Alvin puts each of the numbers from 1 to 8 onto the vertices of a cube so that the total around each face is the same. What is that 'face total'?

- A 6      B 9      C 12      D 18      E 36

22 Chloe buys 3 lemons, 2 oranges and 1 plum for £1. Ginny buys 3 plums, 2 oranges and 1 lemon for 72p. If 1 lemon costs the same as 3 plums, how much does it cost to buy 1 lemon, 1 orange and 1 plum?

- A 41p      B 42p      C 43p      D 44p      E 45p

23 The product of three consecutive numbers is 15 600. What is their sum?

- A 75      B 78      C 81      D 84      E 87

24 Bill, Jill, Lil and Phil have left their scarves in the hall. They rush back in to put them on without looking. Every child finds that they have the wrong scarf on! In how many ways could they have managed this?



- A 3      B 6      C 9      D 10      E 12

25 Amit, Bede, Cain, Devi, Emily and Frederick sit around a circular table in that order. Amit starts by saying "2015", Bede says "2016", Cain says "2017" and so on round the table. Who will eventually say "5102"?

- A Amit      B Bede      C Cain      D Devi      E Emily