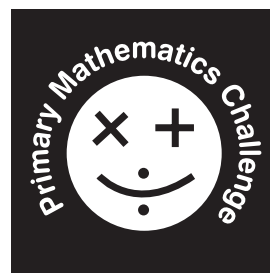


Primary Mathematics Challenge Bonus Paper



1 February 2017

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.

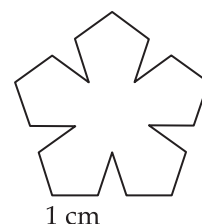
Write down A B C D or E in the space for each answer. When you have finished, use a **B or an HB pencil** to copy your answers onto the machine-readable sheet, which will be sent in for marking.

You will get one mark for each correct answer.

Practice Questions

1 What is the length of the perimeter of this equilateral icosagon (20-sided polygon)?

- A 5 cm B 8 cm C 10 cm D 16 cm E 20 cm



2 A film on TV lasts 2 hours and 28 minutes, and finishes at 11.18 p.m.
At what time does it start?

- A 8.10 p.m. B 8.50 p.m. C 9.10 p.m. D 9.50 p.m. E 1.46 a.m.



Primary Mathematics Challenge Bonus Paper 2017

1 Box Hill in Surrey is 224 m high. Mount Everest (in the Himalayas) is 8848 m high. Approximately, how many times higher is Mount Everest than Box Hill?

A 4 B 40 C 400 D 4000 E 40000

2 A motorway sign states it will take 10 minutes to get to the next junction 11 miles away. At what speed in miles per hour do the road engineers think you are travelling?

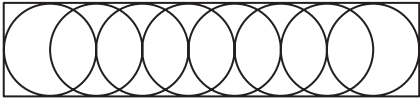
**Next junction
11 miles
Time 10 min**

A 44 B 55 C 66 D 77 E 88

3 Bus number 15 arrives at my bus stop on time at 12 minutes past the hour, and then every 20 minutes until 9.12 p.m. If I arrive at the bus stop to catch the number 15 bus at 9.35 a.m., how many minutes will I wait for the next bus?

A 15 B 16 C 17 D 18 E 19

4 The eight circles in the diagram each have a diameter of 5 cm, touch the sides of the rectangle and pass through the centre of at least one other circle. What is the length of the perimeter of the rectangle?



A 45 cm B 50 cm C 55 cm D 60 cm E 65 cm



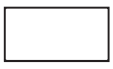


5 Forres, Elgin, Keith, Inverurie and Aberdeen lie in that order along a road. Forres is 80 miles from Aberdeen and 60 miles from Inverurie. Elgin is 70 miles from Aberdeen, and Keith is 30 miles from Inverurie. How many miles is it from Elgin to Keith?

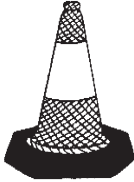
A 10 B 20 C 30 D 40 E 50

6 Clara, Pablo and Miguel share some money in the ratio 3 : 1 : 4. Miguel then gave Pablo and Clara each 25% of his share, leaving Clara with £6 more than Miguel. How much money does Pablo now have?

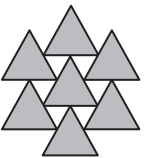
A £2 B £3.60 C £4 D £6 E £12

7 When the white part of the traffic cone is removed and laid flat, which of the following shows the shape of white plastic?

A  B  C  D  E 



8 In the diagram the white equilateral triangles each have an area of 5 cm². What is the area of one shaded triangle in cm²?

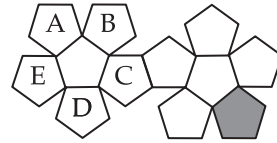


A 10 B 12 C 15 D 20 E 25

9 This year Gareth is seven times the age of his son Herbie.
 In six years' time Gareth will be four times as old as Herbie.
 What is the difference between Gareth's and Herbie's ages this year?

A 16 years B 20 years C 24 years D 36 years E 42 years

10 The diagram shows the net of a solid with twelve faces.
 When the solid is placed with its shaded face onto
 a table, which face can you see on the top of the solid?

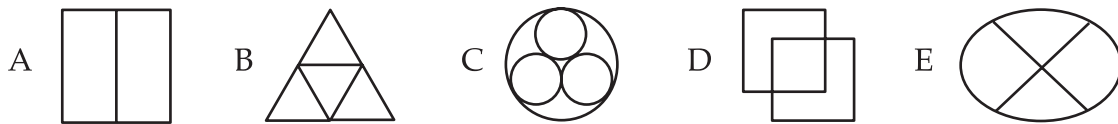


A B C D E

11 It is estimated that there are 1.4 million Native Canadians.
 This represents 4% of the entire population of Canada.
 Which of the following is a rough value for the population of Canada?

A 5.2 million B 28 million C 35 million D 52 million E 140 million

12 You can draw four of the shapes below without lifting your pen from the
 paper or going over a line twice. Which one can you **not** draw in this way?

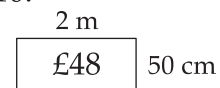


13 In this magic square, the **product** of each row, each
 column and each of the two diagonals is the same.
 What is the value of the number marked by the * ?

18		
	6	*
12		2

A 1 B 3 C 4 D 9 E 36

14 Radiators are priced according to area plus a fixed charge of £10.
 The price of one radiator is shown in the diagram. Using
 this pricing, how much would a 3 m × 0.5 m radiator cost?

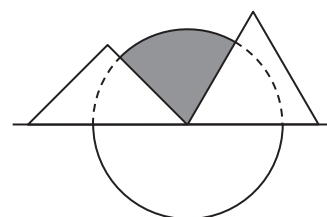


A £50 B £57 C £58 D £67 E £72

15 Miruna had to multiply two 2-digit numbers together, but she accidentally
 reversed the digits of both of them before multiplying and reached the
 answer 209. Which of the following answers should she have obtained?

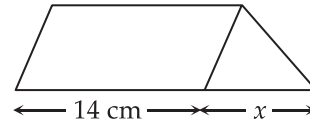
A 1001 B 1003 C 1005 D 1007 E 1009

16 The diagram shows a right-angled isosceles triangle
 and an equilateral triangle touching at the centre of
 a circle and placed together on its diameter.
 What fraction of the circle is shaded?



A $\frac{1}{12}$ B $\frac{3}{16}$ C $\frac{5}{24}$ D $\frac{7}{36}$ E $\frac{9}{40}$

- 17 In the diagram the area of the parallelogram is 98 cm^2 .
The area of the triangle is 21 cm^2 .
What is the length x of the base of the triangle?



- A 3 cm B 4 cm C 4.5 cm D 5 cm E 6 cm

- 18 Two plums and one cherry weigh 80 g. Two cherries and one plum weigh 70 g.
What is the weight of four plums?

- A 30 g B 40 g C 50 g D 120 g E 160 g

- 19 From which of the following names of states of the USA are you most likely to pick a vowel at random?

- A Louisiana B Georgia C California D Oregon E Mississippi

- 20 Nick's 12 silver spoons have three quarters the value of Pilpha's 6 gold rings.
How many silver spoons have the same value as 3 gold rings?

- A 2 B 4 C 6 D 8 E 10

- 21 Six children sit around a table. Alf and Bea do not sit next to each other, nor do Bea and Cal, nor Cal and Alf. The girl with the hedgehog sits on Alf's left. Dev sits on Cal's right. Who sits on the left of the girl with the hedgehog?

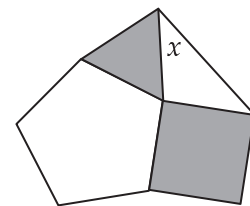


- A Alf B Bea C Cal D Dev E Eli

- 22 To make coleslaw Cathy uses twice as much carrot (by weight) as cabbage. She then adds half as much yoghurt as cabbage. A pot of Cathy's coleslaw weighs 175 g. How many pots of coleslaw can she make with a 2 kg cabbage?

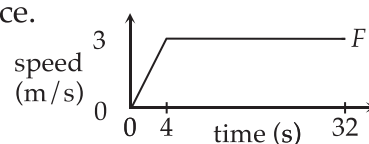
- A 30 B 40 C 50 D 60 E 80

- 23 In the diagram an equilateral triangle and a square are joined to a regular pentagon and another triangle. What is the size of angle x ?



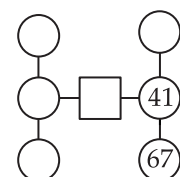
- A 39° B 40° C 42° D 43° E 45°

- 24 The graph on the right shows how Kelly ran in a race. How many metres did she run to the finish F ?



- A 84 B 90 C 95 D 100 E 105

- 25 Seven consecutive prime numbers are placed in this diagram, so that the totals of the three numbers in shapes joined by each straight line are equal. What number is placed in the square?



- A 29 B 37 C 47 D 59 E 61