Primary Mathematics Challenge Bonus Paper

Wednesday 6th February 2013

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 to the MA office for marking.

Correct answers to all questions get one mark each.

Practice Questions

P1　Which of the following decimal fractions has the smallest value?

　　A　0.00001　　　　B　0.0001　　　　C　0.001
　　　　　　D　0.01　　　　　　E 0.1

P2　If a machine stitches a head onto 150 toy bears every 5 minutes, how many heads will it stitch on in 30 seconds?
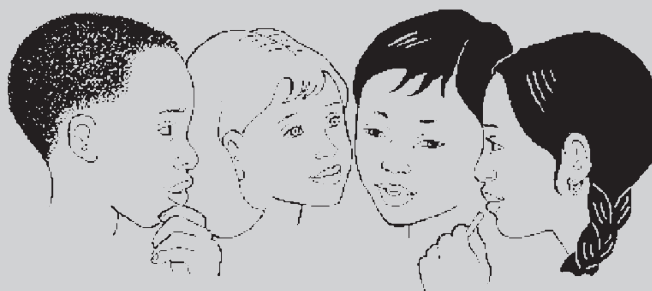　　A　5　　　B　10　　　C　15　　　D　20　　　E　25

Primary Mathematics Challenge Bonus Round 2013

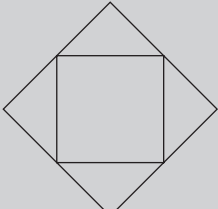**1** In Hampstead, a suburb of north London, it costs 20p to park a car for $7\frac{1}{2}$ minutes.

If I leave my car there for 1 hour how much must I pay?

A 90p   B £1.60   C £2.00   D £2.40   E £3.00

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2 Kate cuts a small triangle from each vertex of a regular hexagon. How many edges does the new shape have?

A 3   B 6   C 9   D 10   E 12

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3 Calculate $1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10$.

A 55   B 95   C 135   D 145   E 155

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4 The Olympic Velodrome has a 250m track. How many circuits does a cyclist have to do to complete a 30km race?

A 4   B 12   C 30   D 40   E 120

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5 Each of the midpoints of the edges of a square is joined to form a smaller square. The area of the smaller square is 20cm². What is the area of the larger square?

A 10cm²   B 20cm²   C 40cm²   D 60cm²
E 80cm²

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6 My teacher Mr Oak says "That's great" half the time, "That's bad" a quarter of the time, "That's cool" an eighth of the time and "Solid" the rest of the time. What fraction of the time does he say "Solid"?

A 1/8   B 1/6   C 1/4   D 1/3   E 1/2

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7 June 1st 2013 falls on a Saturday. On what day will July 1st 2013 fall?

A Monday   B Wednesday   C Friday
    D Saturday   E Sunday

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8 My granny can carry 600 sprouts in a suitcase measuring 30cm × 50cm × 12cm.
How many could she carry in a larger suitcase which measures 50cm × 60cm × 18cm?

A 900   B 1200   C 1800   D 2700   E 3600

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9 I am thinking of a prime number less than 20. When I reverse its digits, I get another prime number.
When I multiply these two prime numbers together I get 403.
What prime number did I think of?

A 11   B 13   C 17   D 19   E 31

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10 Miss Ella Stick likes to stretch her able pupils. In proportion to their height, who gets the greatest stretch?

A Aled, from 100cm to 105cm

B Bertie, from 103cm to 106cm

C Carmen, from 120cm to 125cm

D Daisy, from 125cm to 128cm   E Ethan, from 130cm to 133 cm.

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11 A palindrome is a number whose digits are the same when read forwards as backwards (for example 2002). In how many years from now (2013) will the next year be a palindrome?

A 11   B 33   C 99   D 111   E 131

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12 The shaded area is a plan for a flower-bed in the shape of a V-shaped hexagon, formed from two overlapping right-angled isosceles triangles. What is the area of the flower-bed?

5 m   4 m

A 4.5 m^2 B 8 m^2 C 9 m^2 D 12.5 m^2 E 18 m^2

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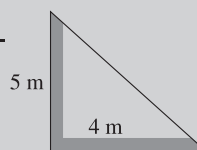
13 Salma Nella knows that one of her feet smells more than the other. So she changes her sock on one foot every two days and on the other foot every three days.

How many socks does she need to wash after 24 days?

A 10   B 12   C 16   D 20   E 24

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14 What is the second to last digit when 5^7 is calculated?

A 0   B 2   C 5   D 6   E 8

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15 How many times faster does the minute hand of a clock go round compared to the hour hand?

A 4   B 6   C 10   D 12   E 60

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16 Suppose $a + b = 1$ and $c + d = 2$ and $e + f = 3$ and $b + c + d + e + f = 5$. What is the value of a ?

A −2   B −1   C 0   D 1   E 2

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17 In a computer game, the code to the door into Cyberheaven has four digits and is divisible by 13, 17 and 19. What is the number?

A 4191   B 4193   C 4195   D 4197   E 4199

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18 Yesterday Peggy Gregg bought 3 cakes and 3 doughnuts for £1.17.

Today she bought 6 cakes and 4 doughnuts for £2.06.

How much will 3 cakes and one doughnut cost her tomorrow?

A 39p   B 89p   C £1.08   D £1.17   E £2.06

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19 What is the next number in this sequence?
1, 2, 3, 6, 11, 20, 37, ___ ?

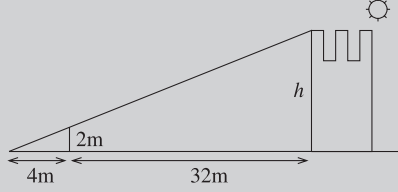A 47   B 54   C 57   D 68   E 74

20 On Monday, Mr Brighton Urly got up at 7.15 am, started work at $(x + 2)$ am and finished work at $(x - 2)$ pm. How many hours did he work on Monday?

A $24 - 2x$ B $12 - x$ C 4   D $2x - 4$ E 8

21 Arky Meedes realizes he can calculate the height h of a tower without climbing to the top and using a tape measure.
He notices that when the sun just appears over the top of the tower, the shadow of a 2m stick is 4m long.
What is the height of the tower?

A 16m   B 18m   C 32m   D 36m   E 64m

22 A cleaner earns £16 000 a year, a teacher earns £28 000 a year and a banker earns £72 000. Suppose they all need £12 000 to pay the basic costs of living. If they all take away the basic costs of living from their salaries, which of the following ratios (cleaner : teacher : banker) best describes the money they are left with for other spending?

A 1:1:1   B 1:2:3   C 1:4:15   D 4:7:18   E 16:28:72
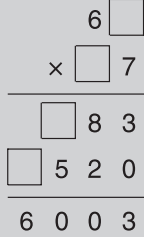
23 A cheetah has been recorded travelling at 72 miles per hour. A snail can travel for 30 hours and cover a mile. How many times faster is the cheetah compared with the snail?

A 24   B 216   C 240   D 2160   E 2400

24 In the long multiplication shown on the right, what is the total of the four digits that should go in the four boxes?

A 26   B 27   C 28   D 29   E 30

25 In a dice game, two dice are thrown together and the results added. A player with a £1 bet receives £10 if the total of two dice is greater than 10.
If this game is played 60 times, how much will this player expect to lose?

A £0   B £10   C £20   D £30   E £40

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