

Four operations (Junior UKMT)

These questions must be attempted without a calculator

Topics covered in the questions below may not necessarily be from the topic of the title.

1. What is 2002×5 ?
A 10 010 B 100 010 C 100 100 D 10 100 E 100 001

2. What is half of 999?
A $444\frac{1}{2}$ B $449\frac{1}{2}$ C $454\frac{1}{2}$ D $494\frac{1}{2}$ E $499\frac{1}{2}$

3. The sum of seven, single-digit positive whole numbers is 17.
Six of these numbers are equal, so what is the other number?
A 1 B 3 C 5 D 7 E 9

4. A ball is dropped onto a hard surface. Each time it bounces, it rebounds to exactly one third of the height from which it fell. After the second bounce the ball rises to a height of 9cm.
From what height was it originally dropped?
A 1cm B 3cm C 9cm D 27cm E 81cm

5. The digits 0, 1, 2, . . . , 9 are equally spaced around a circle. In the following subtractions each digit is to be replaced by the digit exactly opposite it on the circle.
Which subtraction then gives the smallest answer?

| | | |
|---|--------------|---|
| 9 | ⁰ | 1 |
| 8 | | 2 |
| 7 | | 3 |
| 6 | 5 | 4 |

A $20 - 19$ B $30 - 29$ C $40 - 39$ D $50 - 49$ E $60 - 59$

6. Euclid Gardens has 123 houses in it, numbered consecutively from 1 to 123. Houses 29 to 37 inclusive are knocked down to make space for a multi-storey car park.
How many houses remain in Euclid Gardens?
A 86 B 114 C 115 D 116 E 117

7. I choose three numbers from this number square, including one number from each row and one number from each column. I then multiply the three numbers together.

What is the largest possible product?

| | | |
|---|---|---|
| 1 | 2 | 3 |
| 4 | 5 | 6 |
| 7 | 8 | 9 |

- A 72 B 96 C 105 D 162 E 504

8. Which of the following has the largest value?

- A $\frac{1}{2} + \frac{1}{4}$ B $\frac{1}{2} - \frac{1}{4}$ C $\frac{1}{2} \times \frac{1}{4}$ D $\frac{1}{2} \div \frac{1}{4}$ E $\frac{1}{4} \div \frac{1}{2}$

9. The Mystery Prize at the Bank of England Christmas Party was a pile of crisp new £5 notes, numbered from 659384 up to 659500.

What was the value of the prize?

- A £116 B £117 C £580 D £585 E £1420

10. Granny says "I am 84 years old – not counting my Sundays".

How old is she really?

- A 90 B 91 C 96 D 98 E 99

11. Boris, Spike and Percival are going to race up the 99 steps that lead from the beach to the car park at the top of the cliff. Boris can run up five steps in the same time as Spike can run up four steps, which is the same time Percival can run up three steps. It is agreed that Boris starts from the bottom, Spike starts 21 steps up and Percival 38 steps up. If the all start at the same time, in what order will they reach the top?

- A SBP B SPB C PBS D PSB E BSP

12. In a sequence of positive integers, every term after the first two terms is the sum of the two previous terms in the sequence.

If the fifth term is 2004, what is the maximum possible value of the first term?

- A 399 B 400 C 663 D 999 E 1001