

10/1 Put a circle round the correct answer:

What is the value of the 100th digit in the expansion of one thirteenth?

- A) 0 b) 7 c) 6 d) 9

10/2 You roll an 8-sided die. Your score is all the dots you can see on the 7 observable faces. If you score 33, which number is face down?

10/3 Give your answer in roman numerals: MMXIII subtract MCI

10/4 I buy a DVD with a series of a police drama. Each of the dramas are exactly the same length. If the total time of the DVD is 15.2 hours and there are 10 episodes, how long is each of these episodes, in minutes?

10/5 Use 1, 2, 3, 4, 5 and 6 to make two 3-digit numbers with the smallest possible difference between them. State that smallest difference.

10/6 Jane says the numbers from one to one hundred. What is the sum of all these numbers?

10/7 Write the number 68 as the sum of two primes.

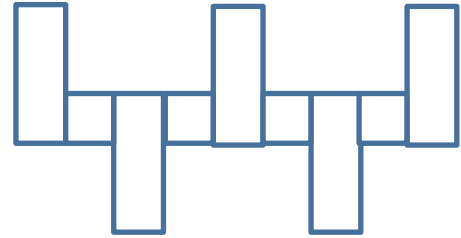
10/8 Joel is playing a Think of a Number game with his maths group. Teacher says: Think of a number under 20, multiply it by 8, subtract 12, quarter it and add 1, and now halve your answer. Joel's finishing number was 9. What was his starting number?

10/9 Find the smallest possible number that leaves a remainder of 1 when divided by 2, 3, 4, 5 or 6, but which can be divided by 7 exactly.

10/10 List the numbers between 1 and 20 which cannot be expressed as the sum of positive consecutive numbers?

10/11 An enterprise group in school is making scarves to raise funds for the new library. It costs \$300 dollars to hire the equipment to makes the scarves and the cost of material for each scarf is \$3. How many must they sell at \$10 to achieve at least \$500 profits for the library?

- 10/12** The square has a side of 1 and the rectangle has sides 1 and x . Find the perimeter of the figure.



- 10/13** The area of a rectangle has one side increased by 10%, and the other side reduced in order to keep the area the same. By what percentage must the side be shortened? Give your answer exactly.
- 10/14** Find the area of the figure with vertices: $(4,0)$, $(0,3)$, $(-3,-1)$, and $(1,-4)$
- 10/15** Eight hundred and thirty seven subtract a three digit number equals some hundred and some tens five. This subtraction uses all the digits from one to nine. Find the smallest answer to the subtraction.
- 10/16** If the alphabet is laid out and the value of one given to A and subsequent letters are halved in value, what will the value of Z be expressed, as a fraction raised to a power?

- 10/17** The BEE calculates the basic energy expended per day.

MALES: $BEE = 66 + 13.7w + 5h - 6.8a$

FEMALES $BEE = 655 + 9.6 w + 1.7h - 4.7a$

Where w is weight in kilograms, h is height in centimetres, and a is age in years. How much more basic energy is expended by a boy than a girl if they both weight 60kg, are 160cm tall and 15 years old?

- 10/18** I have a bag of coins. In it, one third of the coins are gold, one fifth of them are silver, two sevenths are bronze and the rest are copper. My bag can hold a maximum of 200 coins. How many coins are in my bag?

10/19
$$\frac{6}{7} = \frac{1}{2} + \frac{1}{3} + \frac{1}{42},$$

What is $\frac{7}{11}$ expressed as the sum of 3 unit fractions where the first fraction is a half ?

- 10/20** The triangle T has sides of length 6, 5, 5. The triangle U has sides of length 8, 5, 5. What is the ratio area T : area U ?