

10/1.

There is a number, greater than zero, that is 3 times the sum of its digits. What is this number?

Attempts:

1	2	3	4	5

10/1.

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1	2	3	4	5

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Attempts:

1	2	3	4	5

10/2.

What is the next number in this sequence?

1, 2, 5, 12, 29, 70, ...

Attempts:

1	2	3	4	5

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Attempts:

1	2	3	4	5

10/3.

If A is 10% of C, and B is 25% of C, what percent of B is A?

Attempts:

1

2

3

4

5

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10/3.

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Attempts:

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Attempts:

1

2

3

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10/4.

Suppose that $a*b = a + \frac{1}{b}$ What is the value of $(1*2)*(2*1)$?

Attempts:

1	2	3	4	5

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1	2	3	4	5

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Attempts:

1	2	3	4	5

10/5.

A snake slides horizontally through a long cylindrical tunnel at 6 centimetres per second. The tunnel is 7.74 metres in length. The snake takes 14 seconds to enter the hole.

- (a) What is the length in centimetres of the snake?
- (b) How many seconds does the snake take to exit the hole after entering it?

Attempts:

	1	2	3	4	5
(a)					
(b)					

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	1	2	3	4	5
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10/6.

When I add 6 times my age 6 years from now to 7 times my age 7 years from now, I get 14 times my current age. How old will I be 4 years from now?

Attempts:

1	2	3	4	5

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Attempts:

1	2	3	4	5

10/7.

Two prime numbers whose difference is 2 are called twin prime numbers, e.g., 3 and 5. How many twin prime numbers are there between 50 and 100?

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1	2	3	4	5

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1	2	3	4	5

10/8.

I divide \$289 (in whole \$ increments) into a number of bags so that I can ask for any amount between \$1 and \$289, and you can give me the proper amount by giving me a certain number of these bags without opening them. What is the minimum number of bags you will need to give me?

Attempts:

1	2	3	4	5

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10/9.

A block of wood in the form of a cuboid 5cm x 8cm x 13cm has all its six faces painted pink. If the wooden block is cut into 520 cubes of 1cm x 1cm x 1cm, how many of these would have some pink paint on them?

Attempts:

1	2	3	4	5

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1	2	3	4	5

10/10.

The product (multiplication) of two numbers is 84. The first number is divided by 3 and the second number is multiplied by 4. The product of the two new numbers is then divided by 2. What is the final result of this calculation?

Attempts:

1	2	3	4	5

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10/11.

The sum of the first 100 terms of the sequence 1, -2, 3, 4, -5, 6, 7, -8, 9, 10... is 1750.
The sum of the first 100 terms of the sequence 1, 2, -3, 4, 5, -6, 7, 8, -9, 10... is equal to what?

Attempts:

1	2	3	4	5

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10/12.

A cylinder 90 cm high has a circumference of 24 cm. A string makes exactly 5 complete turns round the cylinder while its two ends touch the cylinder's top and bottom. How long is the string in cm?

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10/13.

A student walks from home to school and returns riding on a bus along the same route. The entire trip takes 40 minutes. If the bus travels 7 times as fast as the student can walk, how long would it take the student to walk in both directions?

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10/14.

Rui has 27 coloured pearls in her hair. She has twice as many yellow as red pearls. She has the same number of green and blue, but less than the number of red pearls. How many of each colour does she have?

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10/15.

The squares of two consecutive integers differ by 1987. What is the sum of these two integers?

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10/16.

In US currency, a quarter has the value of 25 cents and a penny has a value of 1 cent. A quarter has the same weight as two pennies. If a kilogram of quarters is worth \$25, then how much is a kilogram of pennies worth?

Attempts:

1	2	3	4	5

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1	2	3	4	5

10/17.

How many different even four-digit numbers can you make, using each of these digits once only?

1, 9, 7, 6

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1	2	3	4	5

10/17.

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10/18.

The perimeter of a rectangle is 54cm. If the length is twice the width, what is the area of the rectangle?

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10/19.

During the first four days of Arthur's new job, he had to wake up at 5.30, 5.30, 7.10 and 7.30. What is the mean time Arthur had to wake up each morning?

Attempts:

1	2	3	4	5

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10/19.

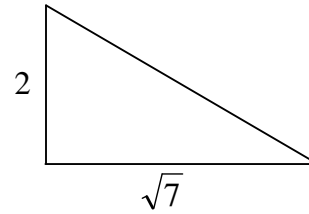
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10/20.

A square is constructed on the hypotenuse of a right angled triangle whose two shorter sides have lengths 2 and $\sqrt{7}$. This forms a pentagon if the shape is looked at end on. What is the area of this pentagon?

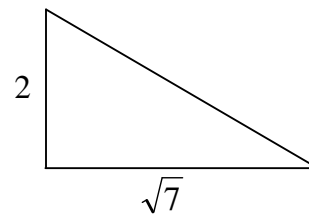


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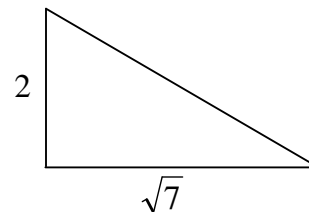


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2003 Mathsmind Year 10 Answers

Question Number	Answer
1	27
2	169
3	40%
4	1 and $\frac{5}{6}$ or 1.8333333.....
5	84 cm and 129 secs (need both answers)
6	89
7	2
8	9
9	322
10	56
11	1684
12	150cm
13	70 mins
14	14 yellow / 7 red / 3 blue / 3 green (need all 4)
15	1987
16	\$2
17	6
18	162
19	6.25
20	$11 + \sqrt{7}$ OR 13.64575... (accept either answer)