

9/1.

Each child in a family has at least 2 brothers and at least 2 sisters. What is the smallest number of children the family might have?

Attempts:

1	2	3	4	5

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Attempts:

1	2	3	4	5

**9/2.**

There is a pole in a lake. One-half of the pole is in the ground, another one-third of it is covered by water, and 9 metres is out of the water. What is the total length of the pole?

**Attempts:**

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

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**9/2.**

There is a pole in a lake. One-half of the pole is in the ground, another one-third of it is covered by water, and 9 metres is out of the water. What is the total length of the pole?

**Attempts:**

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

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**Attempts:**

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

9/3.

A number of children are standing in a circle. They are evenly spaced and the 5th child is directly opposite the 18th child. How many children are there altogether?

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

9/4.

Haretown and Tortoiseville are 33 km apart. A hare travels at 9 km per hour from Haretown to Tortoiseville, while a tortoise travels at 2 km per hour from Tortoiseville to Haretown. If both set out at the same time, how many km will the hare have to travel before meeting the tortoise en route?

Attempts:

1	2	3	4	5

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9/4.

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1	2	3	4	5

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Attempts:

1	2	3	4	5

9/5.

I went to play in the nearby park last weekend. When I reached the park, I saw a total of 15 bicycles and tricycles. If the total number of wheels was 36, how many tricycles were there?

**Attempts:**

1	2	3	4	5

-----

9/5.

I went to play in the nearby park last weekend. When I reached the park, I saw a total of 15 bicycles and tricycles. If the total number of wheels was 36, how many tricycles were there?

**Attempts:**

1	2	3	4	5

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9/5.

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1	2	3	4	5

9/6.

Two books cost a total of \$20.95. One of the books costs \$3.15 more than the other. What is the cost of the less expensive book?

Attempts:

1	2	3	4	5

-----

9/6.

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Attempts:

1	2	3	4	5

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Attempts:

1	2	3	4	5

9/7.

In a box of 40 cookies, 24 of the cookies were round and 20 of them were made of chocolate. If 12 cookies were neither round nor made of chocolate, how many round chocolate cookies were in the box?

**Attempts:**

1	2	3	4	5

-----

9/7.

In a box of 40 cookies, 24 of the cookies were round and 20 of them were made of chocolate. If 12 cookies were neither round nor made of chocolate, how many round chocolate cookies were in the box?

**Attempts:**

1	2	3	4	5

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**Attempts:**

1	2	3	4	5

**9/8.**

Six years ago, Samuel was  $\frac{3}{5}$  of his current age. How old is Samuel now?

**Attempts:**

**1**

**2**

**3**

**4**

**5**

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**9/8.**

Six years ago, Samuel was  $\frac{3}{5}$  of his current age. How old is Samuel now?

**Attempts:**

**1**

**2**

**3**

**4**

**5**

--	--	--	--	--

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**Attempts:**

**1**

**2**

**3**

**4**

**5**

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9/9.

The integers from 1 to 9 are each written once in a 3 x 3 table. The totals of the values in each row and column are given. What number is in the space indicated by the \* ?

			<b>15</b>
			<b>12</b>
		*	<b>18</b>
<b>24</b>	<b>6</b>	<b>15</b>	

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**

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**9/10.**

In a computer room there are 3 times as many boys as girls. If 4 boys and 4 girls leave the room then 5 times as many boys will be in the room as girls. How many students were there in the room originally?

**Attempts:**

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

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**Attempts:**

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

**9/11.**

An integer is composed of three digits. The first digit is even. The second digit is six less than the first digit. The third digit is three less than the first. If the integer is not divisible by five, what is the sum of the three digits?

**Attempts:**

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

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**9/11.**

An integer is composed of three digits. The first digit is even. The second digit is six less than the first digit. The third digit is three less than the first. If the integer is not divisible by five, what is the sum of the three digits?

**Attempts:**

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

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**9/11.**

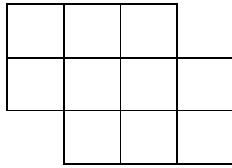
An integer is composed of three digits. The first digit is even. The second digit is six less than the first digit. The third digit is three less than the first. If the integer is not divisible by five, what is the sum of the three digits?

**Attempts:**

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

9/12.

How many different squares are there in the figure shown?



Attempts:

1

2

3

4

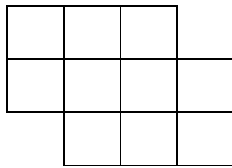
5

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9/12.

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Attempts:

1

2

3

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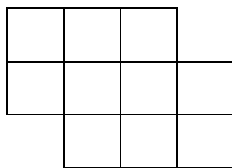
5

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9/12.

How many different squares are there in the figure shown?



Attempts:

1

2

3

4

5

--	--	--	--	--

9/13.

What is the value of:  $\frac{1}{3 - \frac{1}{1 - \frac{1}{2}}}$

Attempts:

1	2	3	4	5

---

9/13.

What is the value of:  $\frac{1}{3 - \frac{1}{1 - \frac{1}{2}}}$

Attempts:

1	2	3	4	5

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9/13.

What is the value of:  $\frac{1}{3 - \frac{1}{1 - \frac{1}{2}}}$

Attempts:

1	2	3	4	5

**9/14.**

A large water tank has two inlet pipes (a large one and a small one) and one outlet pipe. It takes 2 hours to fill the tank with the large inlet pipe and it takes 5 hours to fill the tank with the small inlet pipe. The outlet pipe allows the full tank to be emptied in 7 hours. If the tank holds 700 litres and is empty, how many litres would the tank hold after one and a half-hours if all 3 pipes were in operation at the same time? (Assume a constant flow)

**Attempts:**

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

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**Attempts:**

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

9/15.

A man figured out that he can cover the floor of a square-shaped room with square tiles without having to cut any tile. First he put tiles all around the edges of the floor using 56 tiles. How many tiles does he need in total to cover the whole floor?

Attempts:

1	2	3	4	5

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Attempts:

1	2	3	4	5

**9/16.**

Alex draws 300 circles with a diameter of 1 unit. Brian draws 400 squares with side length 1 unit. Colin draws 500 equilateral triangles with side length 1 unit. What is the total length of all the sides of all the shapes all three people have drawn?

**Attempts:**

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

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**9/16.**

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<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

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**Attempts:**

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>



9/17.

One afternoon Lisa notices that the current time is 10% of the way from 3.00pm to 4.00pm. What fraction of the time from 2.00pm to 5.00pm has elapsed (in it's simplest form)?

Attempts:

1	2	3	4	5

-----

9/17.

One afternoon Lisa notices that the current time is 10% of the way from 3.00pm to 4.00pm. What fraction of the time from 2.00pm to 5.00pm has elapsed (in it's simplest form)?

Attempts:

1	2	3	4	5

-----

9/17.

One afternoon Lisa notices that the current time is 10% of the way from 3.00pm to 4.00pm. What fraction of the time from 2.00pm to 5.00pm has elapsed (in it's simplest form)?

Attempts:

1	2	3	4	5

**9/18.**

A special bike lock has 3 columns of digits from which the bike owner can mix and combine to deter any potential thieves. However, the first column only contains the digits 1 and 2; the middle column only contains the digits 0, 4 and 8; the right hand column contains the digits 3,5,6 and 7. What are all the three digit primes that can be produced by setting the columns in various positions?

**Attempts:**

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

-----

**9/18.**

A special bike lock has 3 columns of digits from which the bike owner can mix and combine to deter any potential thieves. However, the first column only contains the digits 1 and 2; the middle column only contains the digits 0, 4 and 8; the right hand column contains the digits 3,5,6 and 7. What are all the three digit primes that can be produced by setting the columns in various positions?

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<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

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**Attempts:**

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>

9/19.

Calculate the following:  $\sqrt{(1998)(1996)(1994)(1992) + 16}$

Attempts:

1

2

3

4

5

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9/19.

Calculate the following:  $\sqrt{(1998)(1996)(1994)(1992) + 16}$

Attempts:

1

2

3

4

5

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9/19.

Calculate the following:  $\sqrt{(1998)(1996)(1994)(1992) + 16}$

Attempts:

1

2

3

4

5

--	--	--	--	--

9/20.

Find the largest prime number that divides (evenly) into the answer to this equation:

$$8^5 - 5^5 - 3^5$$

Attempts:

1	2	3	4	5

---

9/20.

Find the largest prime number that divides (evenly) into the answer to this equation:

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Attempts:

1	2	3	4	5

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9/20.

Find the largest prime number that divides (evenly) into the answer to this equation:

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Attempts:

1	2	3	4	5

## 2003 Mathsmind Year 9 Answers

Question Number	Answer
1	6
2	54
3	26
4	27km
5	6
6	\$8.90
7	16
8	15
9	6
10	32
11	9
12	14
13	1
14	585 litres
15	225
16	4042.48 (2 d.p.) accept any correctly rounded version
17	$\frac{11}{30}$
18	103, 107, 203, 207, 247, 283, 287 (all required)
19	3 980 020
20	7