

Math Challenge

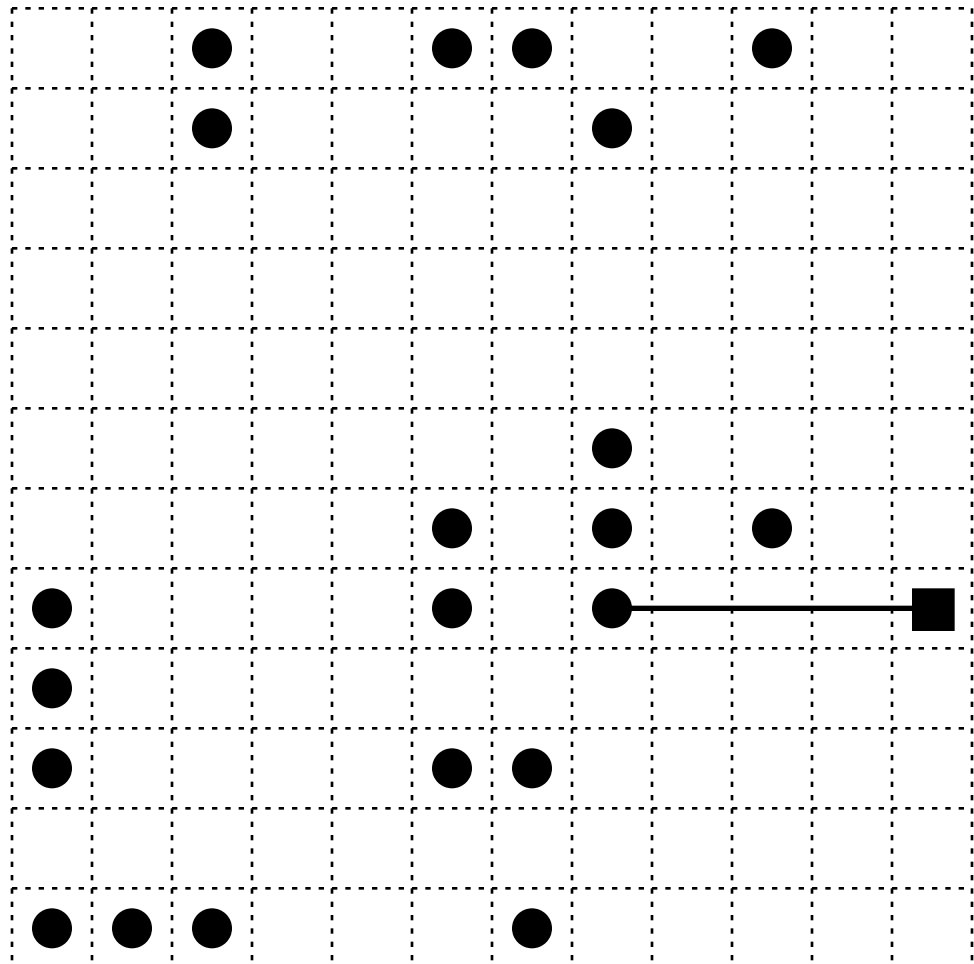


My Name: _____

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Start on the square. Draw exactly 12 lines without picking up your pencil to connect all the circles.



Name: _____

David drove 258 miles. He drove 42 mph for the first 3 hours and 44 mph for the rest of his drive. How long did he drive at 44 mph?

Joshua left his house at 1:17 and drove twenty-four miles at thirty-two mph to the mall. He stayed at the mall for 1 hour and 17 minutes. He drove home at forty-five mph. What time did he get home?

Jason and Katherine both live one hundred twenty-two miles away from the beach. It took Jason three hundred eighty-one minutes less than two times the time it took Katherine to reach the beach. Katherine drove at 26 mph. How long did it take Jason to arrive at the beach?

Madison left early in the morning for a long bike ride. She reached the half point of her ride about one hundred eighty minutes later. She calculated her speed was eight mph for the first half of the trip. If she rides the second half at a rate that is six mph more, how much quicker will the second half be (in minutes)?

Name: _____

Figure out the greatest common factor of the following numbers:

24

48

96

Solve for the unknown value. Hint: It is a positive whole number.

$$7g = 63 \quad g = \underline{\hspace{2cm}}$$

$$47 + g = 90 \quad g = \underline{\hspace{2cm}}$$

$$y + 41 = 76 \quad y = \underline{\hspace{2cm}}$$

$$r + 35 = 78 \quad r = \underline{\hspace{2cm}}$$

$$12g = 48 \quad g = \underline{\hspace{2cm}}$$

Name: _____

The sum of three consecutive integers is 276.
What is the second number?

There are three consecutive odd integers.
Half the sum of the first and second
numbers is 47. What are the integers?

What are two consecutive odd integers
such that twice the smaller decreased by
the larger equals -81?

There are three consecutive odd integers.
Fourteen times the sum of the first and
second numbers is one thousand, three
hundred forty-six more than six times the
third number. What are the integers?

Name: _____

Fill in the missing numbers. How? The sum of the four surrounding numbers is in the center of each square.

Exactly one of the four numbers has to be one of these numbers: $\frac{1}{2}$, $5\frac{8}{9}$, or $3\frac{4}{7}$.

The other three numbers have to all be DIFFERENT and must be from these: $7\frac{1}{2}$, $8\frac{1}{2}$, $1\frac{1}{2}$, or $9\frac{1}{2}$.

	$9\frac{1}{2}$		$1\frac{1}{2}$		$1\frac{1}{2}$		$8\frac{1}{2}$	
$1\frac{1}{2}$	$24\frac{7}{18}$	$7\frac{1}{2}$	18	$8\frac{1}{2}$	18	$7\frac{1}{2}$	$23\frac{7}{18}$	$1\frac{1}{2}$
	$5\frac{8}{9}$		$\frac{1}{2}$		$\frac{1}{2}$		$5\frac{8}{9}$	
$8\frac{1}{2}$	$31\frac{7}{18}$	$9\frac{1}{2}$	26	$7\frac{1}{2}$	26	$9\frac{1}{2}$	$24\frac{7}{18}$	$7\frac{1}{2}$
	$7\frac{1}{2}$		$8\frac{1}{2}$		$8\frac{1}{2}$		$1\frac{1}{2}$	
$9\frac{1}{2}$	19	$1\frac{1}{2}$	$21\frac{1}{14}$	$3\frac{4}{7}$	$29\frac{1}{14}$	$7\frac{1}{2}$	$23\frac{7}{18}$	$5\frac{8}{9}$
	$\frac{1}{2}$		$7\frac{1}{2}$		$9\frac{1}{2}$		$8\frac{1}{2}$	
$8\frac{1}{2}$	20	$9\frac{1}{2}$		$\frac{1}{2}$	19	$1\frac{1}{2}$	$23\frac{1}{14}$	$3\frac{4}{7}$
	$1\frac{1}{2}$		$1\frac{1}{2}$		$7\frac{1}{2}$		$9\frac{1}{2}$	
$3\frac{4}{7}$	$21\frac{1}{14}$	$8\frac{1}{2}$	$23\frac{1}{14}$	$9\frac{1}{2}$		$5\frac{8}{9}$		$7\frac{1}{2}$
	$7\frac{1}{2}$		$3\frac{4}{7}$		$8\frac{1}{2}$		$8\frac{1}{2}$	

Name: _____

If a number is increased by 45, the result is 114. What is the number?

Thirty less than a number is negative one hundred five. What is the number?

3.1 added to nine times a number is $82\frac{3}{10}$. What is the number?

10,000 and 2,000,000 added to a number is 2,942,214. What is the number?

Name: _____

Amber sells two grades of green tea. She paid \$4.98 per pound for the higher grade and \$1.75 per pound for the lower grade. She decided to sell the mixture for \$5.01 per pound. How many pounds of higher quality tea should be added to 13 pounds of lower quality tea if she sold the entire mixture for a profit of \$42.67?

Hunter has two types of iodine in his lab. He has brand 275 iodine, which costs sixty-eight cents per ounce. He also has brand 821 iodine, which costs \$1.74 an ounce. How many ounces of brand 275 should he use if he has 66 ounces of brand 821 and wants to make a mixture that costs approximately \$0.86 per ounce?

The EdHelper Florist sells roses at \$11.25 a bunch, tulips at \$2.75 a bunch, and daffodils at \$8.70 a bunch. Hannah ordered a bouquet of 25 bunches of roses and tulips. If she wants to spend exactly \$128.25, how many bunches of each can she buy?

Ashley wants to make 40% citric acid. If she has $\frac{1}{2}$ liters of 0% citric acid, how many liters of 50% citric acid should she add?

Name: _____

Let's play the guessing game. How many seconds do you think it would take for you to write the number 9,882,860,476,285 in good handwriting?

Okay, let's figure out how long it takes. Get a clock and see how long it takes you to write 9,882,860,476,285 a total of 5 times. Do it here. How long did it take? Then divide the total time by 5 to see how long it takes on average.

$\frac{3}{5}$ of the kids in Mr. Smith's class signed up for soccer.

$\frac{5}{6}$ of the kids in Mrs. Rodriguez's class signed up for soccer.

Which class has more kids who signed up for soccer?

Using mental math (do it in your head!), pick the largest answer in each group.

a. $(-6490) - (-8744)$
 $6490 - (-8744)$
 $6490 + (-8744)$
 $(-6490) + (-8744)$

b. $7998 - (-5238)$
 $(-7998) + (-5238)$
 $(-7998) - (-5238)$
 $7998 + (-5238)$

c. $8439 - (-6052)$
 $8439 + (-6052)$
 $(-8439) + (-6052)$
 $(-8439) - (-6052)$

Write a math story word problem for which the answer is 7 remainder 3 and uses the names Adam and Peter.

Name: _____

		+		x		+		=	
+	B		?		A		B		135
	B		C		B		B		56
+									
	C		C		B		B		55
=									
	20		23		25		21		

Equations and Hints:

Each letter is a whole number.

Fill in the equations using the chart:

$$B + C \times B + B = 56 \quad A + B + \underline{\quad} = 25$$

$$\underline{\quad} + \underline{\quad} + \underline{\quad} = 21 \quad \underline{\quad} + \underline{\quad} + \underline{\quad} = 20$$

$$\underline{\quad} + \underline{\quad} \times \underline{\quad} + \underline{\quad} = 55$$

Additional hints:

$$A = C + 5 \quad C < 7$$

Solve:

$$? = \underline{\quad}$$

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Name: _____

An underground chamber has been discovered in an old mansion. The chamber is thought to have been used for storing ammunition. The dimensions of the chamber are 14 feet by 6 feet by 6 feet. An old ammunition crate was also found in the chamber and it had dimensions of 1 foot by 1 foot by 3 feet. What is the maximum number of ammunition boxes of that size that could be put in the underground chamber?

If 88 out of 100 grasshoppers are immune to a pesticide after five years of use, how many would be expected to be immune in a population of 2.2 million after five years of use?

If a solution of MgCl is $\frac{1}{2}$ M, what will its concentration be if it is diluted by 12%?
Express your answer as a fraction.

The acceleration of gravity on planet X is three-fourths of that of Earth's moon, and the gravity on the moon is one-sixth that of Earth. If a block of wood weighs 22 pounds on Earth, what will it weigh on planet X?

The local football team wants to purchase enough tarp material to cover their field during bad weather. The field, including the end zones is 120 yards long and 50 yards wide. They want to get exactly eighteen percent more than is needed to cover the field so some of the sidelines and area beyond each end zone are covered as well. How many square yards of tarp material should they buy?

You have the set of numbers $\{-1, -2, 6, 5, 8, -3, 2, 8, 1, 7\}$. What is the ratio of positive numbers to negative numbers?

Name: _____

Erin bought a new E string for her bass. The string cost \$3.91 plus 5.4% sales tax. What was the total cost?

Maria is a good pitcher for the Littleville softball team. During a recent practice she measured her pitch velocity using a radar gun. She pitched 10 balls a distance of 40 feet. The speeds measured were 46, 35, 40, 45, 47, 37, 38, 36, 43, and 44 miles per hour, respectively. What was the average time it took the balls to travel the 40 feet? Round your answer to the nearest hundredth of a second.

Scientists estimate that the average annual temperature in Bigtown has increased by one and five tenths percent over the past century. If the current average annual temperature in Bigtown is 16.7°C , what must the average temperature have been 100 years ago? Round your answer to the nearest hundredth of a degree.

If two-thirds of all type-Y organisms are bristly, and six-sevenths of all type-Y organisms are wrinkly, what is the maximum number of type-Y organisms that are neither bristly nor wrinkly out of a sample population of 1,302?

Ms. Wilburson's candy store is selling lots of Super Chompers (a kind of candy bar). The numbers of Super Chompers she sold per hour for the first 5 hours of the day are 44, 70, 49, 93, and 78. How many did she sell in those first five hours?

Mr. Bloop added 30 grams of salt to 28 grams of sugar and then added an amount of sand equal to the total mass of the salt and sugar he already had. Nobody knows why he did this—he just did it. What was the total mass of the mixture when he was finished?

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Name: _____

Jessica and April are playing a new giveaway game. The game is in the shape of a circle. A light goes around the circle. When a player presses the button, the light stops. Players can win 1 ticket, 2 tickets, 3 tickets, 4 tickets, or 5 tickets, depending on where the light stops. Jessica played one round, and then April played a round. What is the probability that they both won more than 3 tickets?

Erin is trying to figure out how many different remainders she can get when she divides by 4. She started dividing 61 by 4, then 62 by 4, and so on. Show her how many different remainders can be made.

What would happen if you divide larger numbers like 610 by 4? Can you get different remainders?

Jenna is trading Zinkocoins on the cryptocurrency exchange with Hannah. Jenna wants to sell Zinkocoins to Hannah for dollars. The exchange says that 100 Zinkocoins is equal to \$0.95.

Jenna wants to sell 500 Zinkocoins to Hannah. How much money should Hannah give Jenna?

Jenna changed her mind and instead wants to sell 5700 Zinkocoins to Hannah. How much money should Hannah give Jenna?

You work at the hardware store. A customer by the name of Mary walks up to you. She says, "I want to put a decorative garden fence around my rectangular garden, which is 74 centimeters long and 25 centimeters wide. I like this garden fence you are selling. The package says the fence is 24 inches high and 5 feet long. How many packages do you think I need?"

What would be your response to Mary?

Page 1 Answers

- 1 3 hours
- 2 driving time was 77 minutes. arrive home at 3:51
- 3 3 hours and 3 minutes (It took Katherine 4 hours and 42 minutes)
- 4 The second half would take 103 minutes. It will be about 77 minutes quicker. Anything within a few minutes should be fine. (Distance=48 total miles)

Page 3 Answers

- 1 92 (numbers are 91, 92, and 93)
- 2 46, 48, and 50
- 3 -79 and -77
- 4 61, 63, and 65

Page 5 Answers

- 1 69
- 2 -75
- 3 $8\frac{4}{5}$
- 4 932,214

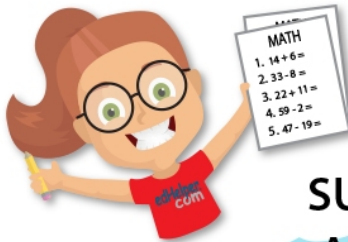
Page 6 Answers

- 1 13 pounds (note: his cost is \$2.50 per pound)
- 2 323 ounces of brand 275
- 3 7 bunches of roses and 18 bunches of tulips
- 4 2 liters

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