

Math Challenge

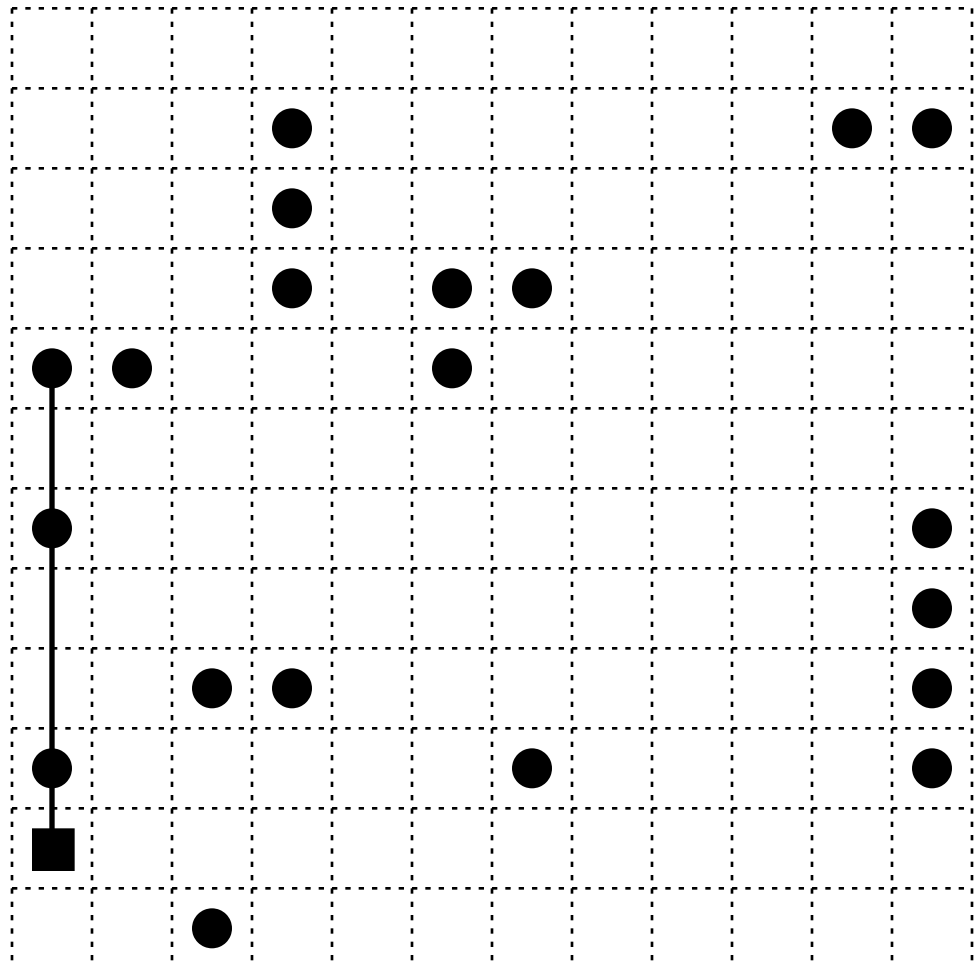


My Name: _____

Skip 1 page.

- ☐ page 1
- ☐ page 2
- ☐ page 3
- ☐ page 4
- ☐ page 5
- ☐ page 6
- ☐ page 7
- ☐ page 8
- ☐ page 9
- ☐ page 10
- ☐ page 11
- ☐ page 12

Start on the square. Draw exactly 11 lines without picking up your pencil to connect all the circles.



Name: _____

Danielle is seven years younger than Rebecca. Rebecca is two years older than Julia. Danielle is five years younger than Julia. The sum of their ages is fifty-one. How old is Danielle?

Brian is four less than one-third as old as Katherine. Katherine is twenty years older than Brian. How old is Brian?

Twenty-five years ago, Sydney was eight less than one-third as old as Jennifer was. Today, Jennifer is six more than two times the age of Sydney. How old is Sydney?

Danielle is eleven years older than James. Abigail is fourteen years younger than Danielle. Abigail is three years younger than James. The sum of all three ages is eight more than three times the age of James. How old is Abigail?

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I did page 2

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Name: _____

Get a fidget spinner! Spin it.

I needed to spin _____ time(s) to finish.

Round 10,605 to the nearest thousand.

What is 50% of 282?

What 3 coins add up to 20 cents?

24, 30, 38, 48, 60, 74, 90,
_____, 128, 150, 17449, 55, _____, 68, 75, 83,
91, 100, 109, 119, 129, 140,
151, 163, 175, 188

$$12 + 30 \div 10$$

$$0.1 (0.3 (0.1 \times 4)) =$$

$$0.6 (0.7 (0.6 + 7)) =$$

5, 50, 57, 570, 577,
5770, _____, __, __, __

$$(0.7)(0.13)$$

$$\frac{2}{3} \div \frac{4}{9} =$$

$$4 \times 4 = 4^x$$

What is the value of x?

Name: _____

Kaylee has 36 less compact discs than Mackenzie has. Mackenzie and Kaylee have a total of less than 240 CDs. What can be said about the number of CDs that Kaylee has?

Isaac has budgeted to spend three times more on food than on entertainment. He also wants to spend three times more on rent than on food. If he has \$1,170.55 to spend, what is the most he can spend on food?

One hundred ten more than twelve times a number is greater than thirteen times the number. What numbers satisfy this inequality?

The sum of two consecutive positive integers is less than one hundred forty-one. What pair of numbers has the greatest sum?

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: $5\frac{7}{9}$, $7\frac{6}{7}$, or $4\frac{2}{3}$.

The other three numbers have to all be DIFFERENT and must be from these: $\frac{2}{9}$, $1\frac{5}{9}$, $8\frac{1}{9}$, or $6\frac{4}{9}$.

	$\frac{2}{9}$		$1\frac{5}{9}$		$1\frac{5}{9}$		$5\frac{7}{9}$	
$7\frac{6}{7}$	$17\frac{47}{63}$	$8\frac{1}{9}$		$4\frac{2}{3}$	$14\frac{5}{9}$	$\frac{2}{9}$	$15\frac{2}{3}$	$1\frac{5}{9}$
	$1\frac{5}{9}$		$6\frac{4}{9}$		$8\frac{1}{9}$		$8\frac{1}{9}$	
$7\frac{6}{7}$	$17\frac{47}{63}$	$\frac{2}{9}$	$16\frac{5}{63}$	$1\frac{5}{9}$	$14\frac{5}{9}$	$\frac{2}{9}$	$22\frac{40}{63}$	$6\frac{4}{9}$
	$8\frac{1}{9}$		$7\frac{6}{7}$		$4\frac{2}{3}$		$7\frac{6}{7}$	
$6\frac{4}{9}$	$20\frac{7}{9}$	$1\frac{5}{9}$	$16\frac{5}{63}$	$\frac{2}{9}$	$12\frac{8}{9}$	$1\frac{5}{9}$	$16\frac{5}{63}$	$\frac{2}{9}$
	$4\frac{2}{3}$		$6\frac{4}{9}$		$6\frac{4}{9}$		$6\frac{4}{9}$	
$1\frac{5}{9}$	$14\frac{5}{9}$	$8\frac{1}{9}$	$21\frac{8}{9}$	$1\frac{5}{9}$	14	$5\frac{7}{9}$	$21\frac{8}{9}$	$1\frac{5}{9}$
	$\frac{2}{9}$		$5\frac{7}{9}$		$\frac{2}{9}$		$8\frac{1}{9}$	
$1\frac{5}{9}$	$14\frac{5}{9}$	$8\frac{1}{9}$	$21\frac{8}{9}$	$6\frac{4}{9}$		$1\frac{5}{9}$		$7\frac{6}{7}$
	$4\frac{2}{3}$		$1\frac{5}{9}$		$5\frac{7}{9}$		$6\frac{4}{9}$	

Name: _____

A rectangle, whose perimeter is one hundred twenty feet, has a length that is six feet longer than its width. What are the dimensions of the rectangle?

A rectangle, whose perimeter is one hundred sixteen feet, has a length that is eight feet longer than its width. What are the dimensions of the rectangle?

A rectangle, whose perimeter is one hundred ten feet, has a length that is nine feet longer than its width. What are the dimensions of the rectangle?

A rectangle, whose perimeter is one hundred twenty-two feet, has a width that is seven feet shorter than its length. What is the area of the rectangle?

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Name: _____

Christian has 2 liters of a mixture containing 75% of boric acid. How much water must be added to make the mixture 60% boric acid?

Savannah wants to mix 7 liters of 4% milk with skim-milk (0% fat) to produce a mixture of $2\frac{2}{55}\%$ milk. How much skim-milk should Savannah add?

Devin has 1 liter of 63% acid. How much water should he add to make a solution that is 9% acid?

How much water should be added to fifty-seven grams of a sixty percent solution of antiseptic to make a 38% solution?

Name: _____

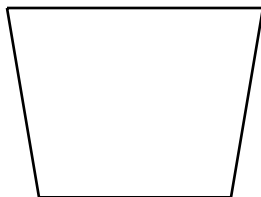
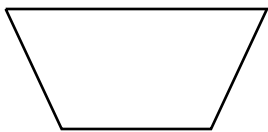
1	2
88	96
104	112
120	128
136	144
152	160

a. If this pattern continues, in which column would the number 4,896 be?

b. If this pattern continues, would the number 8,166 be in any of the columns? If so, which column?

Emily collected all the biggest rocks that she could find. She found 29 rocks with an average weight of 837 grams.

How much do all the rocks weigh in kilograms?



Color in approximately half of the area for each shape.

The square pizza store sells pizza only in the shape of squares. Their original square pizza costs \$6 and has a diameter of 15 centimeters. Mary is the owner, and due to the success of the original square pizza, she wants to introduce a jumbo square pizza. She wants to price the new pizza at the same rate, just larger. If she wants the jumbo to be priced at \$18, how large should the jumbo pizza be?

What is the area of each of the pies?

Name: _____

Wendy is mapping an imaginary trip from point $(-2, 6)$ to $(14, 6)$. She liked $(14, 6)$ so much that she was there for 3 days! Then she went to visit point $(14, 0)$. Aren't you jealous? If 1 unit = 75 miles, how many total miles did she travel?

Pick the correct answer using brain power. No writing.

0.4×0.2 is what? 0.8 or 0.08 or 8

0.17×0.2 is what? 0.0034 or 0.00034 or 0.034

0.09×0.12 is what? 0.0108 or 0.000108 or 0.108

8.11×0.4 is what? 0.3244 or 3.244 or 324.4

Name: _____

		+		-		=	
x	A	A	A				7
+	A	A	B				12
=	A	?	C				0
	56	51	23				

Equations and Hints:

Each letter is a whole number.

Fill in the equations using the chart:

$$A \times A + A = 56 \quad A \times \underline{\quad} + C = 23 \quad \underline{\quad} + \underline{\quad} - \underline{\quad} = 12$$

$$\underline{\quad} + \underline{\quad} - \underline{\quad} = 7$$

Additional hints:

$$A = B + 5 \quad C > 3$$

Show Work:

Solve:

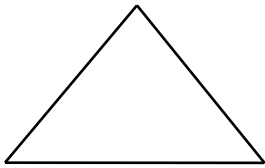
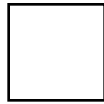
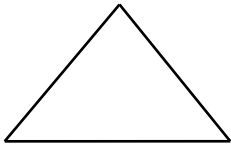
$$? = \underline{\quad}$$

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I did page 10

☐I decided to skip this page
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Name: _____



Color in approximately half of the area for each shape.

Emily picks a number between 1 and 5.
Sarah picks a number between 1 and 5.
What is the probability that they both picked the same number?

Rose is working on a computer program. She created a variable and set its initial value to 8. Then she made a loop. In the loop, she multiplies the variable by 2 and prints the current value. Here is the program.

```
my_variable = 8
count = 0
while (count < 4):
    count = count + 1
    my_variable = my_variable * 2
    print (my_variable, "\n")
```

What will this computer program print?

Emma is trading Zinkocoins on the cryptocurrency exchange with Sara. Emma wants to sell Zinkocoins to Sara for dollars. The exchange says that 100 Zinkocoins is equal to \$0.66.

Emma wants to sell 1400 Zinkocoins to Sara. How much money should Sara give Emma?

Emma changed her mind and instead wants to sell 600 Zinkocoins to Sara. How much money should Sara give Emma?

Name: _____

There were 12,274 weddings in Springs City last year. According to state records, notaries public performed 11% of the weddings. How many weddings were not performed by notaries public?

In a creek bed, $\frac{1}{6}$ of the gravel is less than 5 mm in diameter and $\frac{1}{6}$ of it is between 5 and 10 mm in diameter. What fraction of the gravel is greater than one centimeter in diameter?

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 nineteen 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?

A new crop circle has appeared in Cool Town. It is a rather simple one. It consists of two concentric circles. The largest (outer) circle has a radius of fifty-six meters, and the inner circle has a radius of twenty meters. What is the difference between the perimeters of the circles?

You do an experiment to collect data on earthworm behavior. You test the hypothesis that "If a worm is put into a terrarium, it will begin to bury itself within 10 seconds." After analyzing the data, you report that the probability that a worm will begin to bury itself within 10 seconds is 0.67. Based on this information, what is the probability that the next two worms in a row will "bury within 10 seconds?"

A sample of blood is collected from a patient. The pH of the blood is found to be 6.84. The same patient is tested the next day and their blood pH is then 6.5. What was the difference between the two blood pH measurements?

Name: _____

It is student council election time again! Your principal has asked you to vote for three representatives from your math class. Since your class is small (13 students) it should not be too hard to figure out how many combinations of three students are possible to be selected in this process. Can you figure it out?

Attendance is up at the local minor league stadium this year. Last year, there was an average of 3,389 fans per game. This year the average has been 4,240. What percent increase has occurred? Round your answer to the nearest hundredth of a percent.

Thirty percent of the plants in the park are broad-leafed plants and the rest are grasses. What percent of the plants are grasses?

There are 59,816 colored marbles in a large plastic jar (yes it is a pretty large jar). If half of them are blue, one-eighth are red, and one-sixteenth are green, how many are some other color?

In gym, Anna needs to choose four other players to be on her team. There are ten students she can choose among. How many different teams can she make?

After doing an experiment you learn that 60 percent of the carrot seeds from company A germinated (began to grow) within ten days, while only 45 percent of the seeds from company B germinated within ten days. What was the comparative germination ratio?

You have the set of numbers $\{-7, -8, -3, 9, 5, -2, 6, 7, 4, 10\}$. What is the ratio of positive numbers to negative numbers?

Mr. Bloop dissolved 4.3 grams of sugar in 129 ml of water. What was the final concentration of sugar (in g/ml)? Round your answer to the nearest ten-thousandth.

Page 1 Answers

- 1 13
- 2 4
- 3 32
- 4 13

Page 2 Answers

Page 3 Answers

- 1 Kaylee has less than 102 compact discs.
- 2 \$270.12 (entertainment \$90.04, food \$270.12, rent \$810.36)
- 3 Any number less than 110
- 4 69 and 70

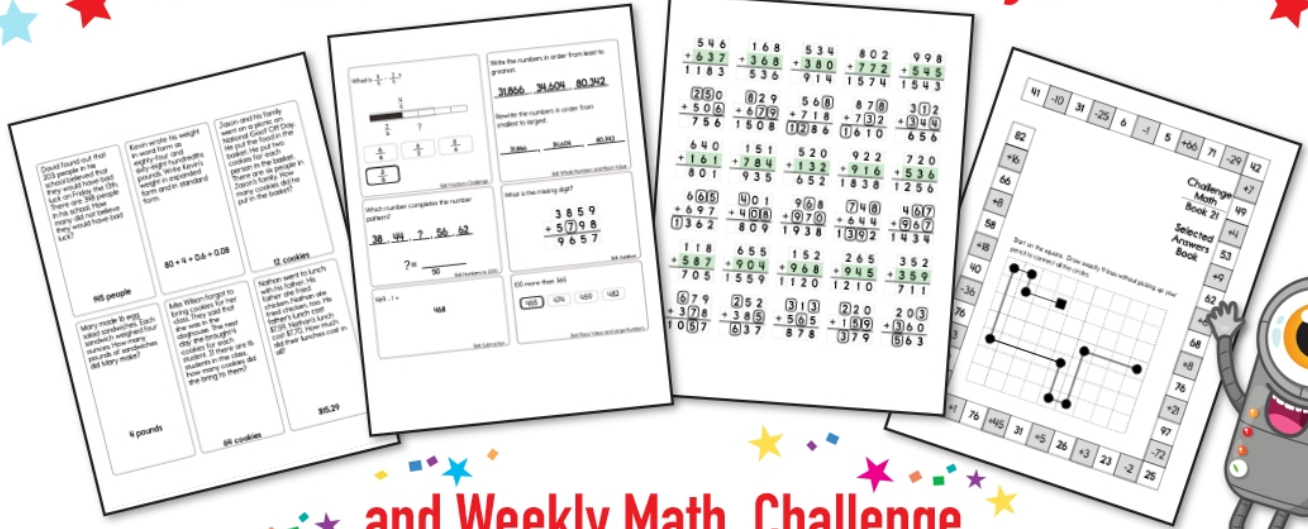
Page 5 Answers

- 1 27 feet wide by 33 feet long
- 2 25 feet wide by 33 feet long
- 3 23 feet wide by 32 feet long
- 4 918 square feet (27 feet wide by 34 feet long)

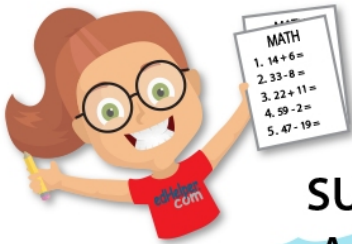
Page 6 Answers

- 1 $\frac{1}{2}$ liters
- 2 $6\frac{3}{4}$ liters
- 3 6 liters
- 4 33 grams

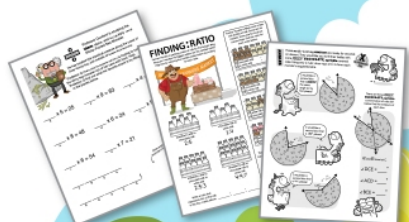
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