

# Math Challenge

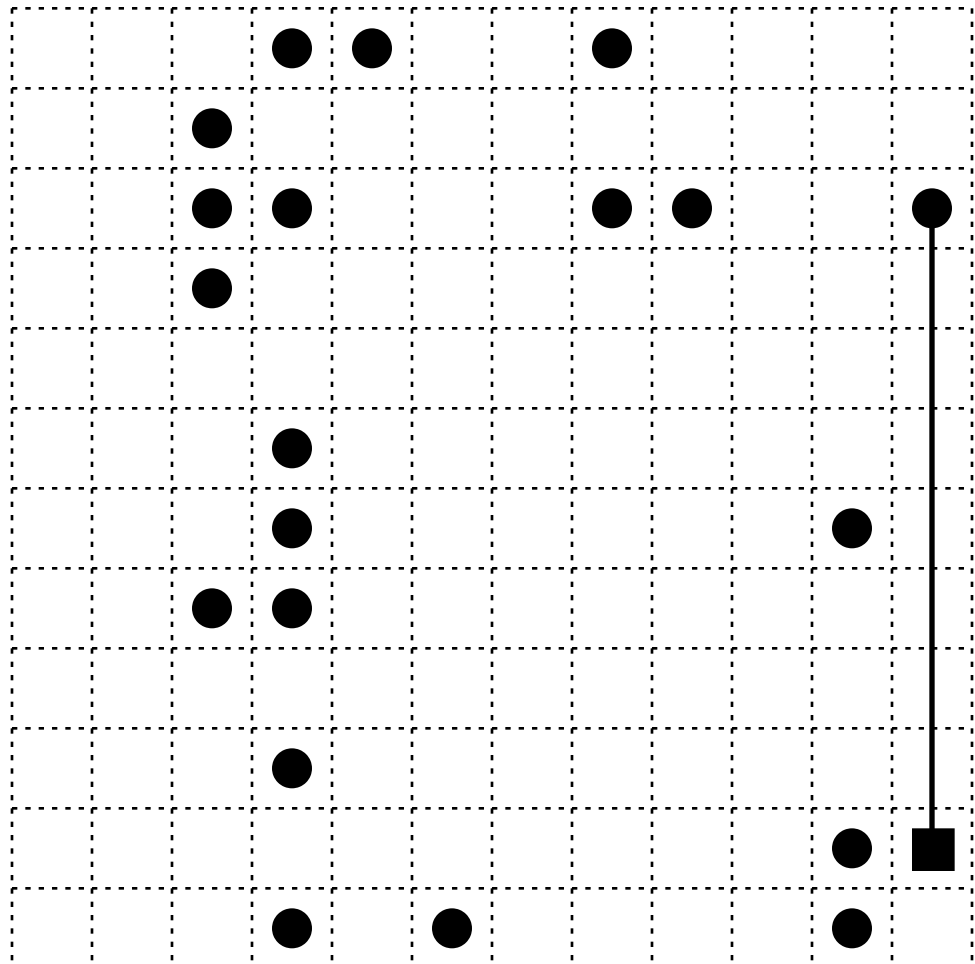


My Name: \_\_\_\_\_

Skip 1 page.

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

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



Name: \_\_\_\_\_

Victoria went to EdHelper Clothes to buy a shirt and one pair of shoes. She told her mom that she would spend less than \$91.93. Victoria wants to spend \$7 more than two times on shoes than on a shirt. What is the most expensive pair of shoes she can buy?

If a fifth of a positive number is added to six times that given number, the result is less than 347. What is the largest positive integer that makes this inequality true?

The sum of two consecutive integers is between 53 and 227. What are the possible values for the set of integers?

Matthew had grades of 68, 80, 65, and 67 on 4 assignments. If Matthew wants his average grade to be greater than 72, what is the lowest grade he needs on the next assignment?

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Name: \_\_\_\_\_

Get a fidget spinner! Spin it.

I needed to spin \_\_\_\_\_ time(s) to finish.

A toy car can go 4 mph.  
How long would it take to  
go 9 miles?

56 divided by 7 equals

$$4 + 9 + 7 - 1$$

40, \_\_\_\_\_, 60, 70, 80,  
90

What is the area of a  
rectangle with sides 4 cm  
and 9 cm?

Write the missing family  
fact.

$$9 \times 14 = 126$$

$$126 \div 9 = 14$$

$$14 \times 9 = 126$$

If  $3x = 51$ , then  $x =$

$$8.6912 \times 10^4 =$$

B, K, C, \_\_\_\_\_, D, O,  
E, Q, F, S

2, 2, 8, 17, 14, \_\_\_\_\_,  
20, 47, 26, 62, 32, 77,  
38, 92

$$8 \times (32 \div 4) - 84 \div 12 =$$

$$3 + 3 \cdot 7 + 5$$

Name: \_\_\_\_\_

Noah is five years older than Kevin, who is four years older than Katherine. The sum of their ages is forty-nine. How old is Noah?

Nathan is one-fourth the age of Michael. Eric is one-third the age of Michael. The sum of their ages is nineteen. How old is Nathan?

When Ryan is seventeen years older than he was when he was one-half his present age, he will be thirty-eight less than three times as old as he is now. How old is Ryan?

Seventeen years ago, Jordan was eight less than one-half as old as Victoria was. Today, Victoria is thirty-two less than three times the age of Jordan. How old is Jordan?

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:  $6\frac{2}{3}$ ,  $\frac{1}{6}$ , or  $8\frac{3}{4}$ .

The other three numbers have to all be DIFFERENT and must be from these:  $4\frac{1}{3}$ ,  $5\frac{1}{3}$ ,  $1\frac{2}{3}$ , or  $3\frac{2}{3}$ .

	$5\frac{1}{3}$			$\frac{1}{6}$		
$3\frac{2}{3}$	$19\frac{5}{12}$	$1\frac{2}{3}$	$16\frac{1}{3}$		$9\frac{5}{6}$	$19\frac{5}{12}$
	$8\frac{3}{4}$		$6\frac{2}{3}$		$3\frac{2}{3}$	
	$22\frac{1}{12}$				$18\frac{5}{12}$	$22\frac{1}{12}$
	$16\frac{1}{3}$		$19\frac{5}{12}$		$19\frac{5}{12}$	$13\frac{1}{2}$
	$17\frac{1}{3}$		$16\frac{1}{3}$		$20\frac{1}{12}$	$11\frac{1}{2}$
	18		$16\frac{1}{3}$			

Name: \_\_\_\_\_

Natalie and Kayla can finish a job in  $8\frac{4}{7}$  days. Natalie can do the job herself in ten days. If Kayla wanted to do the job alone, how long would it take her?

It takes Kaylee and Olivia  $3\frac{3}{5}$  days to complete a project. Olivia works two-thirds as fast as Kaylee. If Kaylee wants to do the project alone, how long would it take Kaylee?

Ryan's copy store received an order for 8,624 copies. The store has 3 printers. The first printer can print eleven pages per minute, the second eight pages per minute, and the third fourteen pages per minute. How long would it take to process the order if all three printers were used at the same time?

Benjamin and John are thinking about working together on a project. The project should start at 1:36 p.m. If Benjamin did it by himself, he would finish it by 3:19 p.m. If John did the project by himself, she would not finish it until 3:51 p.m. If they decided to work together, approximately what time would they finish?

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Name: \_\_\_\_\_

Brian wants to make  $2\frac{3}{5}$  liters of 55% citric acid. If he has 25% citric acid and also 64% citric acid, how much of each should he combine?

Sydney has two types of iodine in her lab. She has brand 136 iodine, which costs forty-nine cents per ounce. She also has brand 536 iodine, which costs \$1.52 an ounce. How many ounces of brand 136 should she use if she has 74 ounces of brand 536 and wants to make a mixture that costs approximately \$0.69 per ounce?

Caleb has a 60% silver alloy. Kaitlyn has a 75% silver alloy. They melted their alloys to create 140 grams of a 66.96% silver alloy. How many grams was Brianna's' alloy?

How many liters of a twenty-four percent solution of acid should be added to  $\frac{2}{3}$  liters of an 83% solution of acid to obtain a  $57\frac{5}{7}\%$  solution?

Name: \_\_\_\_\_

There are 4 prime numbers greater than 10 but less than 20. Name them.

Megan and Mary have a secret way of sending numbers to each other. Megan plots a point on a grid. Megan plotted these points and wrote T. That means the pair of numbers she wants is the point that will be farthest to the top. Circle that point. While you are at it, put a rectangle around the point farthest to the right! Show your work.

(16, 8)

(5, 25)

(19, 4)

(7, 13)



Name: \_\_\_\_\_

	+	+	-	=	
+	B	C	A	C	19
+	B	C	B	C	20
=	?	B	C	C	21
	31	32	30	33	

### Equations and Hints:

Each letter is a whole number.

Fill in the equations using the chart:

$$C + C + C = 33 \quad B + C + B - C = \underline{\quad}$$

$$\underline{\quad} + \underline{\quad} + \underline{\quad} - \underline{\quad} = 19 \quad \underline{\quad} + \underline{\quad} + \underline{\quad} = 32$$

$$\underline{\quad} + \underline{\quad} + \underline{\quad} = 30$$

Additional hints:

$$C = A + 2 \quad B < 11$$

Solve:

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

Name: \_\_\_\_\_

Dr. Smith has asked you to prepare a 1% potassium sulfate solution. What mass of potassium sulfate (in grams) must be dissolved in 60 ml of water to obtain a solution that will meet his approval?

Captain Howard had his crew paint the smokestack on his ship which was called the Sea Snail. The smokestack is shaped like a cylinder and is 36 feet 3 inches tall. The radius of the smokestack's base is nine feet. What is the volume of the smokestack?

Sara is making white oatmeal cookies with raisins and pecans for her club. The recipe makes fourteen of the big, chewy kind of oatmeal cookies with lots of raisins and nuts. It takes two-thirds of a cup of nuts and three-fourths of a cup of raisins just for the fourteen cookies! There are forty-seven members in Sara's club. If she makes exactly forty-seven cookies, how many cups of nuts will she need?

Mr. Fleep had a new flying disk design. He made some calculations and decided if he could make a flying disk that had a perimeter exactly three times the diameter that it would be more aerodynamically stable than a "standard" flying disk and thus fly further. Is his design possible? Why or why not?

If two out of every seven individuals in a population of armadillos carry a gene for a defective enzyme, how many individuals carry the normal gene in a population of 814 armadillos?

Rosa wanted to make bread pudding with lemon sauce for dessert for her family. However, she couldn't find a recipe that would make four servings. She decided to use a recipe for eight servings and use only half as much of each ingredient. The recipe for eight called for two and two-thirds cups of raisins. How many cups of raisins will she need for four people?

Name: \_\_\_\_\_

Jenna donated twelve percent of the money she earned this summer to her local fire department. If she donated a total of \$127 how much did she earn this summer?

David bought some parts to repair his saxophone. He needed a new ligature (the part that clamps the reed to the mouthpiece). He found several different kinds in some catalogs. He decided to buy one of each since they were not that expensive and he wanted to see which one he liked the best. He got one for \$11.33, one for \$6.51, and one for \$8.23. The total shipping cost for all three was \$5 and the sales tax on everything he purchased, including shipping, was 8.5%. How much did he spend?

Uh-oh, rats have moved into Mr. Bloop's backyard. If the colony has 8 members now but doubles in size every year, how many rats might there be in Mr. Bloop's backyard after four years?

Robert is late for work. He has to drive his triscooter from his house on Road One to his office on Road Four. The trip is about 7 km. How long will it take him to get there if his average speed is 32 km/hr?

Justin has not been too successful when running the quarterback sneak play for the Smallville football team this year. On six attempts, he has achieved the following results (in yards): 1, -3, -4, 2, 0, and -5. What is his average yardage on the quarterback sneak? Round your answer to the nearest tenth.

The old mine near Smallville used to produce a lot of silver ore. The ore deposit has been pretty much depleted now though. Today the ore removal is only about 24% of what it was 30 years ago. If an average of 2.4 million tons per year were removed 30 years ago, what is the current ore removal rate? Express your answer using scientific notation.

## Page 1 Answers

- 1 \$63.60 on shoes (\$28.30 for a shirt)
- 2 55
- 3 The first number is between 26 and 113
- 4 At least a grade of 81

## Page 2 Answers

## Page 3 Answers

- 1 21
- 2 3
- 3 22
- 4 32

## Page 5 Answers

- 1 60 days
- 2 9 days (Olivia would take 6 days)
- 3 4 hours and 22 minutes
- 4 2:35 p.m. (It would take them about 59 minutes)

## Page 6 Answers

- 1 2 liters of 64% and  $\frac{3}{5}$  liters of 25%
- 2 305 ounces of brand 136
- 3 65 grams
- 4  $\frac{1}{2}$  liters



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