Summer Work Packet for MPH Math Classes

Practice for
students going into Math 6
Sept. 2022

Name: _____

To be prepared to jump right into things in Math 6, please spend time this summer practicing your math facts. When you begin 6th grade, you should know your addition, subtraction, multiplication, and division facts from 1-12. This means you should know the answer to problems like 9 x 7 or 48÷12 without spending time working them out.

Good ways to practice include flash cards or practicing with a parent or friend. There are also lots of websites and apps that you can use to help practice your facts. It will be important you are fluent with them in the fall.

In addition to knowing your math facts, you will complete this summer packet. You are encouraged to do it by the weeks that it is mapped out as. This will give you continuous practice throughout the summer and not be overwhelmed at the beginning of the school year.

If you have any questions, you may email Mrs. Reeve at sreeve@mphschool.org.

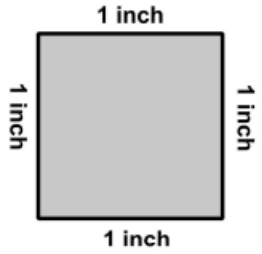
Math 6 Summer Packet **2022/2023** **Name: _____**

Math is about more than numbers. It's also about patterns and making connections. This year you will be developing, analyzing, and writing about mathematics. These practice questions will give you a good foundation so you can be confident and successful in 6th grade math. There are challenge questions scattered throughout. These are not required, but you are encouraged to try them.

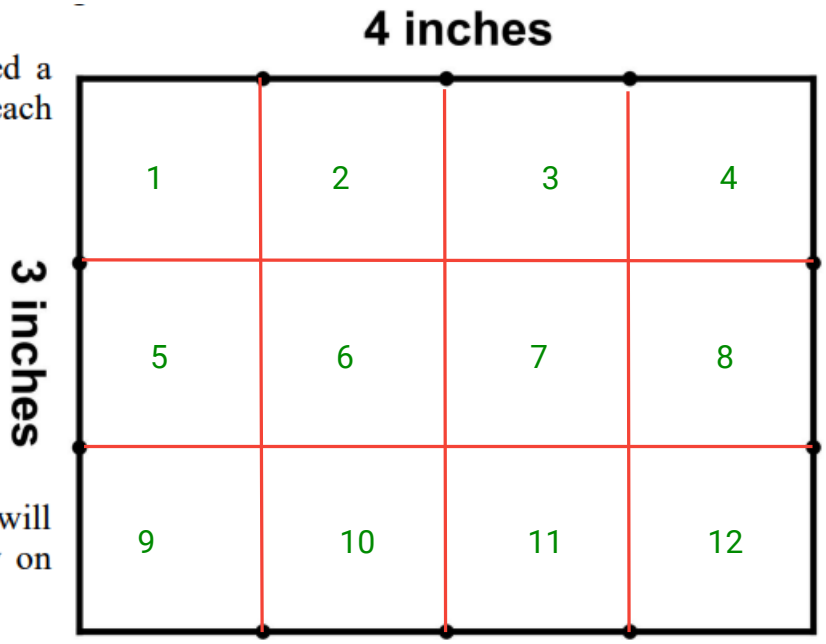
Week 1:
Multiplying and Dividing Whole Numbers

Example 1:
The rectangle shown below has a length of 4 inches and a width of 3 inches. Points have been placed at one-inch intervals along each side.

(a) The image shown below is called a **square inch** (a square where each side is one inch long).



How many of these square inches will fit inside of the rectangle? Draw on this picture to justify.

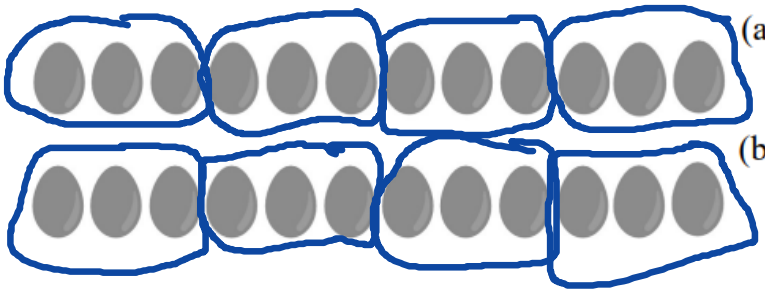


12 of the 1 inch by 1 inch squares will fit inside the rectangle

(b) How can we find the area of any rectangle without drawing in all of the unit squares that fall inside of it?

Multiply the length and the width of the rectangle together: 4 in x 3 in = 12 in^2

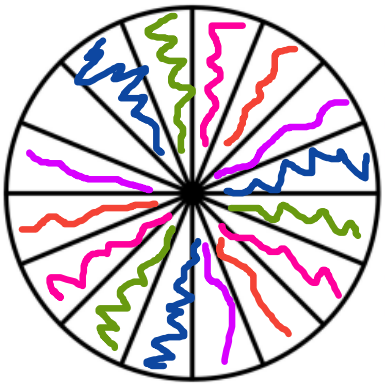
Example 2: A restaurant is making 3-egg omelets. If the restaurant has 24 eggs, how many omelets can it make?



(a) Circle groups of three eggs to determine the answer. 8 omelets

(b) Write a division sentence that justifies your answer. 24/3 = 8

Example 3: A pizza has been cut into 16 slices as shown below. If five friends share the pizza equally, answer the following questions.



(a) How many whole slices will each person receive?

Each person will get 3 slices because 5 x 3 = 15

(b) How many slices will remain after the whole slices are given out?

1 slice will remain after the whole slices are given out.

(c) Write a division sentence that summarizes what we found in (a) and (b). Write an equivalent multiplication sentence.

Division sentence: 16 ÷ 5 = 3 R1 Multiplication sentence: 5 x 3 + 1 = 16

(d) If the remainder was divided equally between the five friends, how much of a slice of pizza would each of them get? Also, how much total pizza does each friend get?

$\frac{1}{5}$

So each friend will get 3 whole slices and 1/5 of another slice for a total of 3 1/5 slices.

Example 4: Find each of the following quotients. All answers will be whole numbers.

(a) 23 | 1035

45

-92↓

115

-115

0

(b) 14 | 868

62

-84↓

28

-28

0

(c) 75 | 1650

22

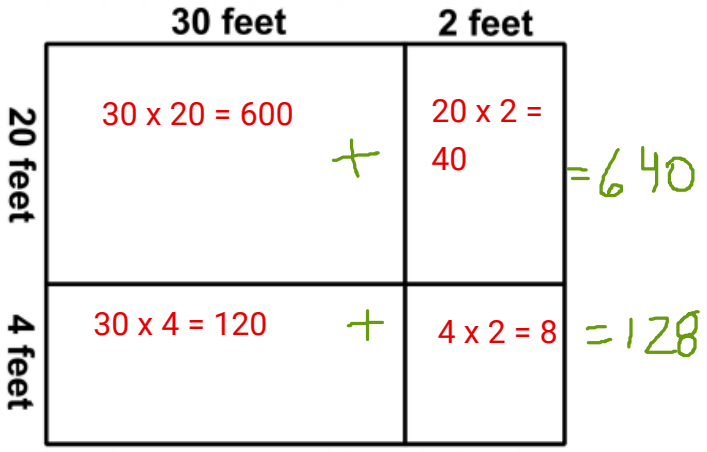
-150↓

150

-150

0

Example 5: A rectangle has a length of 32 feet and a width of 24 feet. It is broken into four sections with lengths as shown in the picture.



(a) Find the area of each of the four rectangles in the picture and write their areas inside each. Find the total area by adding.

600 + 40 + 120 + 8 = 768 square feet

(b) Find the product below using the standard algorithm. How do the rows of this product relate to the area of the rectangles?

$$\begin{array}{r} 32 \\ \times 24 \\ \hline 128 \\ 640 \\ \hline 768 \end{array}$$

128 ← Same as the area of the bottom two rectangles added together

640 ← Same as the area of the top two rectangles added together

Your Turn:

1. We can also find the product of three or more whole numbers. Find each of the following products. Remember to evaluate the product in parentheses first.

(a) $(5\times2)\times9=$ _____ (b) $6\times(2\times4)=$ _____

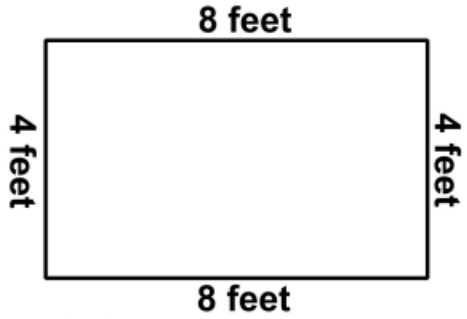
2. If you have three or more numbers multiplying each other, does the order you multiply them in matter? Try finding the product $2\times3\times5$ in three different ways to check:

(a) $(2\times3)\times5=$ _____ (b) $2\times(3\times5)=$ _____

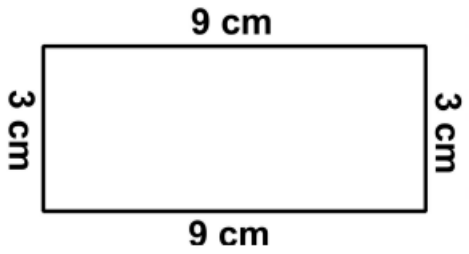
(c) $(2\times5)\times3=$ _____ (d) Did the order you multiplied in matter?

3. Find the area of each of the following rectangles. Use appropriate units in your answers.

(a)

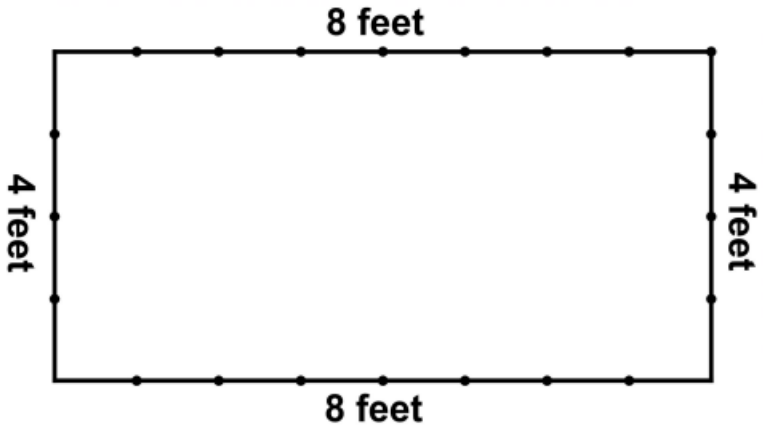


(b)



Area = _____ Area = _____

4. A rectangular garden has a length of 8 feet and width of 4 feet as shown.



(a) Determine the area of the rectangle and include appropriate units.

(b) Use a ruler to connect the points on the rectangle's sides to visualize your answer from (a)

5. Find each of the following quotients. Express your answer as a whole number and a remainder.

(a) $20 \div 8 =$ _____ (b) $30 \div 7 =$ _____ (c) $65 \div 8 =$ _____

(d) $53 \div 10 =$ _____ (e) $26 \div 4 =$ _____ (f) $75 \div 8 =$ _____

(g) $20 \div 3 =$ _____ (h) $49 \div 9 =$ _____ (i) $39 \div 5 =$ _____

6. The area of a rectangle is 42 square centimeters. If its length if 6 centimeters, how many centimeters is its width? Justify your answer.

7. Find each of the following products using the standard method. Show your work.

(a) 24×7 (b) 78×5 (c) 139×3

(d) 52×33 (e) 86×13 (f) 35×35

8. Find each of the following quotients. The answers will all be whole numbers.

(a) $7\overline{)182}$ (b) $4\overline{)256}$ (c) $9\overline{)423}$

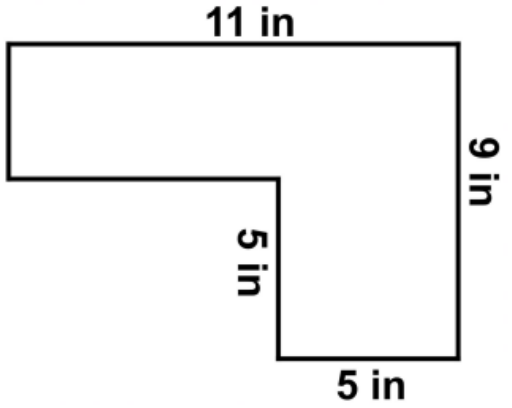
9. Find each of the following quotients. The answers will be whole numbers.

(a) $12\overline{)312}$ (b) $52\overline{)1352}$ (c) $45\overline{)630}$

10. Yellow Bell Farm delivered 408 eggs to various stores around the Hudson Valley. If all the eggs were delivered in cartons that hold a dozen eggs, then how many cartons were delivered? Justify your answer.

Challenge:

1. Laura is creating the following design out of wood. For it to be light enough, she needs its area to be less than 80 square inches. Will Laura's design be light enough? Justify your answer.



2. Nora is comparing the number of trading cards she has with her friend Kaiden. Originally, Nora had four times as many cards as Kaiden had. She then got eight additional cards for her birthday. If Kaiden had 11 cards when they did their comparison, how many did Nora have after her birthday?

3. Theo is saving $8 per week for a vacation he is taking. He started off with some money in savings, but less than $8. At the end of his weeks of savings, he had a total of $52.

   (a) How many weeks was he saving money? (Hint: divide 52 by 8 and think about the answer).

   (b) How much money did Theo start off with? Explain.

4. Six friends are helping put stamps on letters to be sent to their state senator. There are 14 boxes of letters, each containing 45 letters. If each of the six friends put stamps on an equal number of letters, how many letters did each person stamp? Justify.

Week 2
Rounding

Example: 54,689 rounded to the nearest 1,000 is 55,000

Round to the accuracy of the underlined digit.

1. 6,4<u>2</u>9 = _____ 2. 2,<u>3</u>98 = _____ 3. 8,<u>3</u>97 = _____

4. 2<u>6</u>,717 = _____ 5. 97,<u>0</u>82 = _____ 6. 9,<u>1</u>92 = _____

7. 3,<u>3</u>73 = _____ 8. 19,<u>5</u>86 = _____ 9. 18,<u>0</u>32 = _____

10. <u>4</u>,220 = _____ 11. 1,2<u>3</u>6 = _____ 12. 5<u>8</u>,518 = _____

13. <u>6</u>2,377 = _____ 14. <u>9</u>0,315 = _____ 15. <u>2</u>,243 = _____

16. There are 157 newly built homes in a subdivision. 68 gallons of paint and 13 paint brushes were used for each house. About _____ gallons of paint were used for the new homes.

a. 10,500 b. 10,700 c. 10,400

17. 445 bags of cement and 122 sacks of sand were used to build each house. Roughly _____ bags were used to build the 157 houses in the subdivision.

a. 69,900 b. 72,600 c. 68,500

18. There were 132,789 hollow blocks at the construction site. The construction supplier delivered an additional 112,000 hollow blocks earlier today. In the afternoon, 65,685 hollow blocks were used. There were about _____ hollow blocks left at the construction site.

a. 180,100 b. 178,100 c. 179,100

Challenge:

John was able to sell 2 units for $202,000 each. He will get $\frac{1}{20}$ of the total sales as his commission. Roughly, John's commission is _____.

a. $20,200 b. $20,100 c. $22,000

Week 3:
Adding and Subtracting Decimals

Example 1: Consider the sum $0.79 + 0.45$.

(a) Write each decimal in its expanded, fraction form.

$\frac{79}{100} + \frac{45}{100}$

(b) Add the two numbers and convert back to a decimal. Make sure to show how you regroup.

$\frac{124}{100}$

$\frac{100}{100} + \frac{24}{100}$

$1 + .24$

1.24

What we see is that adding decimals works exactly like adding whole numbers, including the use of **regrouping** (or carrying). This is because, like with whole numbers, each decimal place is ten-times greater than the one to its right.

As with whole numbers, **decimal subtraction** can be more difficult because of our need to borrow (or regroup) when needed. Keep in mind, borrowing will work just like it does for whole numbers since each digit represents ten times the amount of the digit one place to the right.

Example 2: Find each of the following differences. Borrow when necessary.

(a)
$$\begin{array}{r} 12.71 \\ -\ 4.53 \\ \hline 8.18 \end{array}$$

(b) $9.57 - 2.71$
$$\begin{array}{r} 9.57 \\ -\ 2.71 \\ \hline 6.86 \end{array}$$

(c) $5.6 - 2.89$
$$\begin{array}{r} 5.60 \\ -\ 2.89 \\ \hline 2.71 \end{array}$$

Your Turn:

1. Find each of the following sums.

(a) $\begin{array}{r} 6.7 \\ +\ 5.9 \\ \hline \end{array}$ (b) $\begin{array}{r} 27.3 \\ +\ 8.93 \\ \hline \end{array}$ (c) $\begin{array}{r} 35.38 \\ +\ 19.14 \\ \hline \end{array}$ (d) $\begin{array}{r} 6.193 \\ +\ 19.058 \\ \hline \end{array}$

2. Find each of the following sums. Rewrite if necessary.

(a) $7.28 + 5.14$ (b) $28.35 + 7.94$ (c) $8.73 + 5.5$ (d) $9.352 + 0.875$

3. Kirk believes that 0.6 and 0.5 are added, the sum must be equal to 0.11. Explain why Kirk's answer does not make sense and what the correct answer should be.

4. Find each of the following differences.

(a) $\begin{array}{r} 9.7 \\ -\ 4.2 \\ \hline \end{array}$ (b) $\begin{array}{r} 12.3 \\ -\ 9.7 \\ \hline \end{array}$ (c) $\begin{array}{r} 8.35 \\ -\ 0.73 \\ \hline \end{array}$ (d) $\begin{array}{r} 5.194 \\ -\ 3.815 \\ \hline \end{array}$

5. Margaret bought an ice cream sandwich that cost \$1.57 and a soda that cost \$2.35 at the swimming pool. How much money did Margaret spend?

6. If Janice bought 3.85 pounds of onions and 5.49 pounds of potatoes at the store, what was the total weight of onions and potatoes she bought? Show how you found your answer.

7. If Thomas is 1.83 meters tall and his daughter Ada is 1.47 meters tall, how much taller is Thomas than Ada in meters? Justify your answer.

Week 4
Multiplying and Dividing Decimals

Example 1: Let's consider the following product: 0.3×0.7

(a) Write each decimal as a fraction and perform the multiplication.

$\frac{3}{10} \times \frac{7}{10} = \frac{21}{100}$

(b) Write your fractional answer from (a) as a decimal. How many decimal places does it have?

0.21 It has two decimal places

We could have done the last problem by simply finding the product of 3 and 7, i.e. 21, and then moving the decimal place two places to the left, from 21.0 to 0.21. Let's try another one.

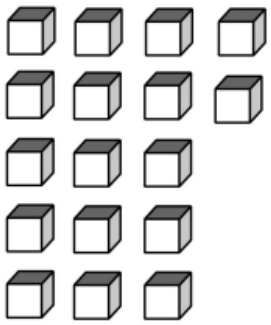
Example 2: Consider the product 0.24×0.7

(a) Write each decimal as an equivalent fraction with a denominator that is a power of 10. $\frac{24}{100} \times \frac{7}{10} = \frac{168}{1000}$

(b) Find the product of the two fractions and express your final answer as a decimal.

0.168

Example 3: Consider the problem $17 \div 5$. The diagram shows 17 cubes to help visualize this problem.



(a) If each of these 17 cubes was broken into tenths, how many tenths would there be? Fill in the blank below.

17 wholes = 170 tenths

(b) Divide the number of tenths you found in (a) by 5 instead using long division.

$$5\overline{)170} = 34$$
$$-15$$
$$20$$

(c) Based on what you found in (b) fill in the following and express your answer as a decimal.

$$17 \div 5 = \frac{34}{10} = 3.4$$

(d) Now perform the division using the standard method below.

$$5\overline{)17.0} = 3.4$$
$$15$$
$$20$$
$$-20$$
$$0$$

We can divide two whole numbers that have remainders by simply performing the standard long division algorithm **beyond the decimal point**.

Example 4: Find each of the following quotients in decimal form.

(a) $4\overline{)26.0} = 6.5$
-24
20
-20
0

(b) $8\overline{)58.00} = 7.25$
-56
20
-16
40
-40
0

(c) $5\overline{)23.0} = 4.6$
-20
30
-30
0

Example 5: Anita fills her car up with gasoline that costs \$3.28 per gallon. She puts 12.35 gallons into her tank.

(a) Estimate the amount of money Anita spends on gasoline by rounding both the price and the amount of gasoline to whole numbers and then multiplying.

3 x 12 = 36

(b) Find the actual amount that Anita spends to fill up her car. Round your answer to the nearest *hundredth*.

$$\begin{array}{r} 12.35 \\ \times\ 3.28 \\ \hline 9880 \\ 24700 \\ 37050 \\ \hline 45.5080 \end{array}$$

\$45.51

Your Turn:

1. The product of 0.42 with 0.2 can be written in fraction form as which of the following?

(1) $\frac{84}{10}$ (3) $\frac{84}{1000}$

(2) $\frac{84}{100}$ (4) $\frac{84}{10000}$ _____

2. Find each of the following products using the standard method. Show your steps.

(a) 0.4×0.4 (b) 0.9×0.3 (c) 0.2×0.4

(d) 5×6.7 (e) 2.5×8.1 (f) 3.2×0.18

3. Joey filled up his car with 8.2 gallons of gasoline. If each gallon costs \$3.76, then find the amount of money Joey spent on gasoline. Round your answer to the nearest *hundredth* (the nearest cent). Show your work. Check your answer using a calculator if available.

4. Gold weighs 19.32 grams per cubic centimeter. If a gold coin contains 2.4 cubic centimeters of gold, how much does it weigh in grams? Show your work.

5. Shana fills up her car with 4.7 gallons of gas. The gas costs \$3.52 per gallon. If she uses a \$20 bill to pay for the gas, how much change does she receive? Show the work that you use to solve this problem.

6. Find each of the following quotients using the standard method for long division. Each decimal will terminate.

(a) $4\overline{)31.0}$ (b) $2\overline{)47.0}$ (c) $5\overline{)112.0}$

7. Find each of the following quotients using the standard method for long division. Each decimal will begin to repeat. Use the repeating decimal bar to indicate that portion.

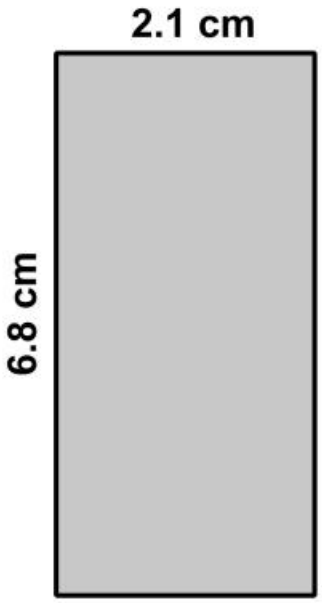
(a) $3\overline{)13.0}$ (b) $6\overline{)47.0}$ (c) $11\overline{)50.0}$

8. The Fruit Bud Families Maple Syrup company made 38 gallons of syrup this year. If they want to split that up amongst 5 families evenly, how many gallons of maple syrup will each family receive? Justify your answer.

9. Four friends set up a lemonade stand and earn $59. If they split that amount evenly between the four of them, how much money does each earn? Justify your answer.

Challenge:

1. A piece of metal is in the shape of a rectangle whose width is 2.1 centimeters and whose length is 6.8 centimeters.



   (a) Find the area of the piece of metal in square centimeters.

   (b) If the metal weighs 1.5 ounces per square centimeter, then what is the total weight of the piece of metal?

2. One of the most interesting fractions to change into a decimal is $\frac{1}{7}$ because it takes quite a few decimals to repeat its pattern. How many decimal places does it take for it to repeat? Determine by doing the long division to the right. (There are more zeros than needed.)

$$\frac{1}{7} = 7\overline{)1.0000000000}$$

3. If 7 pounds of flour is divided into piles that are 0.35 pounds each, how many piles are made? Show the work that leads to your answer.

Week 5
Adding and Subtracting Fractions

Example 1: Consider the fractions $\frac{2}{9}$ and $\frac{5}{9}$.

(a) Fill in the blanks of the following:

$\frac{2}{9}$ represents __2__ ninths

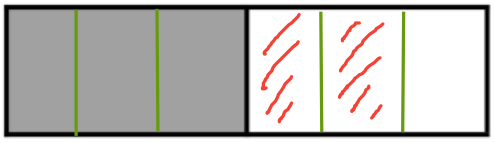
$\frac{5}{9}$ represents __5__ ninths

(b) So, it stands to reason that $\frac{2}{9}+\frac{5}{9}$ would represent __7__ ninths or __$\frac{7}{9}$__ in fraction form.

When we add fractions that have **common denominators** we are just keeping track of **how many unit fractions** we have.

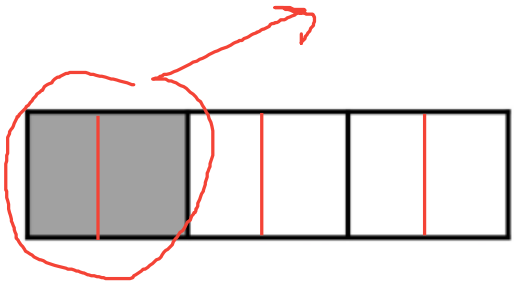
Adding and subtracting fractions that do not have the same denominator is more difficult because you have counts of different **unit fractions**. The key is to **convert** all fractions involved to **equivalent ones** that have a **common denominator**.

Example 2: In the diagram below, $\frac{1}{2}$ of a rectangle and $\frac{1}{3}$ of a rectangle have been shaded. When added together, what fraction of a rectangle has been shaded? Justify your work by modifying the pictures so that you have fractions with **common denominators**.



$\frac{1}{2}=\frac{1\times3}{2\times3}=\frac{3}{6}$

$\frac{1}{2}+\frac{1}{3}=\frac{5}{6}$



$\frac{1}{3}=\frac{2}{6}$

If the two shaded portions of the rectangle were added together on one picture, what fraction of a total rectangle would be unshaded? $\frac{1}{6}$

Your Turn:

1. Find each of the following sums or differences. State your final answer in simplified form. If the result is an improper fraction, turn it into a mixed number.

(a) $\frac{1}{8}+\frac{3}{8}$ (b) $\frac{13}{10}-\frac{9}{10}$ (c) $\frac{13}{5}+\frac{4}{5}$ (d) $\frac{11}{6}-\frac{7}{6}$

2. Find the sums or differences by first writing the fractions with common denominators. Write your answers in simplest form. Express any improper fractions as mixed numbers.

(a) $\frac{7}{4}+\frac{8}{3}$ (b) $\frac{5}{6}+\frac{7}{12}$ (c) $\frac{3}{8}+\frac{11}{6}$

(d) $\frac{7}{6}-\frac{9}{10}$ (e) $\frac{4}{5}-\frac{2}{15}$ (f) $\frac{17}{9}-\frac{11}{6}$

3. Theo adds two-thirds of a cup of water to a pancake recipe and then decides to add an additional quarter cup of water. Theo knows he added almost a total cup of water. How much less than a cup did Theo add? Justify your answer.

4. Find each of the following sums or differences. State your final answer in simplified form. If the result is an improper fraction, turn it into a mixed number.

(a) $\frac{1}{8}+\frac{3}{8}$ (b) $\frac{13}{10}-\frac{9}{10}$ (c) $\frac{13}{5}+\frac{4}{5}$ (d) $\frac{11}{6}-\frac{7}{6}$

5. Find the sums or differences by first writing the fractions with common denominators. Write your answers in simplest form. Express any improper fractions as mixed numbers.

(a) $\frac{7}{4}+\frac{8}{3}$

(b) $\frac{5}{6}+\frac{7}{12}$

(c) $\frac{3}{8}+\frac{11}{6}$

(d) $\frac{7}{6}-\frac{9}{10}$

(e) $\frac{4}{5}-\frac{2}{15}$

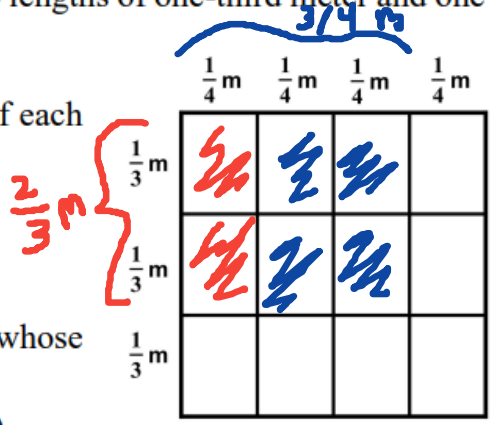
(f) $\frac{17}{9}-\frac{11}{6}$

Challenge:

At the beginning of the evening there were four and one-eighth chocolate bars left. Over the course of the evening, three and three-quarters chocolate bars were eaten. How much chocolate is left at the end of the evening? Justify.

Week 6
Multiplying and Dividing Fractions

Example 1: The following diagram shows a square that measures one meter by one meter, so it has a **total area** of **one square meter**. One side is broken into lengths of one-third meter and one side is broken into lengths of one-quarter meter.



(a) If the overall area is one square meter, what is the area of each of the small rectangles shown in the picture? Explain.

(b) Shade in a rectangle whose width is $\frac{2}{3}$ of a meter and whose length is $\frac{3}{4}$ of a meter. What is its area? (Don't simplify.)

$\frac{6}{12}$

(c) Since the area of a rectangle is always equal to its length times its width, we can now say that:

$$\frac{2}{3}\times\frac{3}{4}=\frac{6}{12}$$

(d) In general, recall that if $\frac{a}{b}$ and $\frac{c}{d}$ are two fractions then:

$$\frac{a}{b}\times\frac{c}{d}=\frac{a\times c}{b\times d}$$

Example 2: Consider the product $\frac{4}{9}\times\frac{6}{8}$.

(a) Find the product by first multiplying and then simplifying.

$$\frac{24}{72}\frac{\div 24}{\div 24}=\frac{1}{3}$$

(b) Find the product by first **cross cancelling** common factors and then by multiplying.

$$\frac{4^{1}}{9_{3}}\times\frac{6^{2}}{8_{2}}=\frac{1}{3}$$

Cross cancelling can make finding the product of two fractions in **simplest form** much easier.

Example 3: Consider the product $3\frac{1}{3} \times 6\frac{2}{5}$.

(a) Express both mixed numbers as improper fractions.

$3\frac{1}{3} =$ 3 + 1/3
= 9/3 + 1/3
= 10/3

$6\frac{2}{5} =$ 6 + 2/5
= 30/5 + 2/5
= 32/5

(b) Find the product of the two numbers. Write your answer in simplest form and as a mixed number.

$\frac{10}{3} \times \frac{32}{5} = \frac{64}{3}$ $21\frac{1}{3}$

Dividing two fractions can seem like a strange idea. To begin to think about division of fractions, keep in mind that we can justify every division sentence with one involving multiplication.

Example 4: Justify each of the following division sentences using a multiplication sentence.

(a) $18 \div 2 = 9$ because 2 × 9 = 18

(b) $42 \div 6 = 7$ because 6 × 7 = 42

(c) $5 \div \frac{1}{2} = 10$ because 1/2 × 10 = 5

(d) $\frac{1}{5} \div 3 = \frac{1}{15}$ because 3 × 1/15 = 3/15 = 1/5

Even "trickier" division sentences like (c) and (d) can be thought of in terms of multiplication. Let's now look at division of fractions whose quotients can be found this way.

Example 5: For each of the following fraction division problems, find the quotients by filling in the **missing part** of the **multiplication sentence**.

(a) $\frac{6}{35} \div \frac{3}{5} =$ 2/7 $\quad \frac{3}{5} \times \frac{2}{7} = \frac{6}{35}$

(b) $\frac{45}{16} \div \frac{5}{8} =$ 9/2 $\quad \frac{5}{8} \times \frac{9}{2} = \frac{45}{16}$

(c) $\frac{55}{21} \div \frac{11}{3} =$ 5/7 $\quad \frac{11}{3} \times \frac{5}{7} = \frac{55}{21}$

(d) $\frac{35}{36} \div \frac{7}{3} =$ 5/12 $\quad \frac{7}{3} \times \frac{5}{12} = \frac{35}{36}$

Example 6: Consider the division problem $\frac{5}{6} \div \frac{2}{3}$. ×2 ×2

(a) Rewrite the division problem so that both fractions have a common denominator and then find the quotient.

$\frac{5}{6} \div \frac{4}{6} = 5 \div 4$

$= \frac{5}{4}$

(b) Check your answer to (a) by using multiplication.

$\frac{2}{3} \times \frac{5}{4} = \frac{5}{6}$

Your Turn:

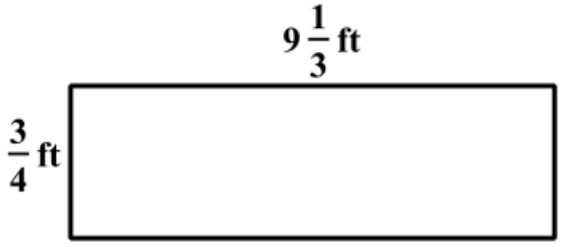
1. Find each product below in simplest form. You may leave your answers as improper fractions.

(a) $\frac{1}{4} \times \frac{1}{3}$ (b) $\frac{1}{2} \times \frac{1}{10}$ (c) $\frac{1}{8} \times \frac{1}{5}$ (d) $\frac{2}{5} \times \frac{2}{5}$

(e) $\frac{2}{3} \times \frac{7}{2}$ (f) $\frac{8}{5} \times \frac{5}{3}$ (g) $\frac{4}{7} \times \frac{1}{2}$ (h) $\frac{10}{3} \times \frac{6}{5}$

(i) $\frac{6}{35} \times \frac{7}{4}$ (j) $\frac{10}{3} \times \frac{5}{6}$ (k) $\frac{8}{7} \times \frac{3}{20}$ (l) $\frac{9}{4} \times \frac{2}{27}$

2. Dave is making a rectangular garden bed. After assembling it, he finds that the bed has a width of three-fourths of a foot and a length of nine and one-third feet, as shown. What is the area of the garden in square feet? Express your answer in simplest form.



3. For each of the following fraction division problems, find the quotients by filling in this missing part of the multiplication sentence.

(a) $\frac{1}{8} \div \frac{1}{2} =$ _____ $\frac{1}{2} \times$ ____ $= \frac{1}{8}$

(b) $\frac{15}{56} \div \frac{3}{8} =$ _____ $\frac{3}{8} \times$ ____ $= \frac{15}{56}$

(c) $\frac{63}{10} \div \frac{9}{5} =$ _____ $\frac{9}{5} \times$ ____ $= \frac{63}{10}$

(d) $\frac{20}{27} \div \frac{5}{3} =$ _____ $\frac{5}{3} \times$ ____ $= \frac{20}{27}$

4. Perform the following fraction division problems where the fractions have a common denominator. Write your answers as either whole numbers or fractions in simplest form.

(a) $\frac{10}{3} \div \frac{2}{3}$

(b) $\frac{8}{5} \div \frac{3}{5}$

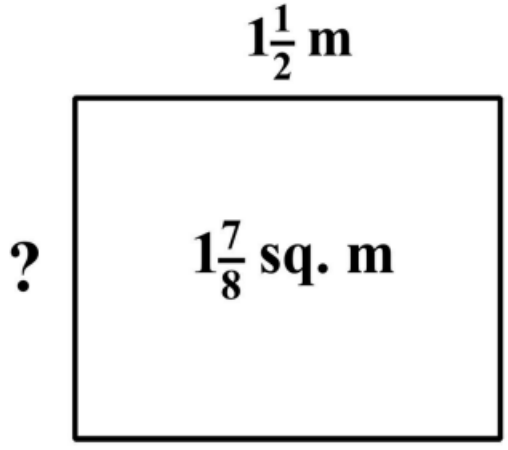
(c) $\frac{4}{7} \div \frac{6}{7}$

5. A rectangle has an area of $1\frac{7}{8}$ square meters and has a length of $1\frac{1}{2}$ meters.

(a) Express both the area and the length as improper fractions.

area = _____ length = _____

(b) Write an expression using division that could be used to find the width of the rectangle.

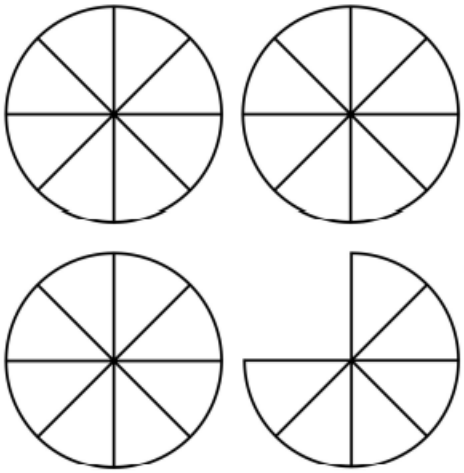


(c) Determine the width of the rectangle as an improper fraction and mixed number. Use a multiplication sentence to justify your answer.

Challenge:

1. Zeke found that there was three-fifths of a pizza left when he got home from school. Zeke eats half of what is left. After Zeke is done, is there more or less than half of a pizza left uneaten? Explain your answer.

2. After a party, the Tyler family has $3\frac{6}{8}$ pizzas left over (shown below). They want to divide the leftover pieces into sections that are each $\frac{3}{8}$ of a pizza.



(a) How many total eighths of a pizza does the family have left over?

(b) Write an expression involving division of fractions that will results in how many sections they will have when they divide up the leftovers.

(c) How many sections will they have? Shade one such section in the diagram above.

Week 7
Order of Operations

Order of Operations

Do things in Parentheses First

✓ $4 \times (5 + 3) = 4 \times 8 = \mathbf{32}$

✗ $4 \times (5 + 3) = 20 + 3 = 23$ (wrong)

Exponents (Powers, Roots) before Multiply, Divide, Add or Subtract

✓ $5 \times 2^2 = 5 \times 4 = \mathbf{20}$

✗ $5 \times 2^2 = 10^2 = 100$ (wrong)

Multiply or Divide before you Add or Subtract

✓ $2 + 5 \times 3 = 2 + 15 = \mathbf{17}$

✗ $2 + 5 \times 3 = 7 \times 3 = 21$ (wrong)

Otherwise just go left to right

✓ $30 \div 5 \times 3 = 6 \times 3 = \mathbf{18}$

✗ $30 \div 5 \times 3 = 30 \div 15 = 2$ (wrong)

1) $(40 + 14) \div 6 =$ _____

2) $40 \times (14 - 6) =$ _____

3) $35 + 6 \times (30 - 23) =$ _____

4) $35 + 6 \times 30 - 23 =$ _____

5) $19 + 40 \div 5 - (8 + 5) =$ _____

6) $(19 + 2) \div (9 - 2) + 14 =$ _____

7) $24 \div 6 + 4 \times (3 + 6) =$ _____

8) $6 \times (21 - 12 - 7) + 24 \div 3 =$ _____

Challenge:

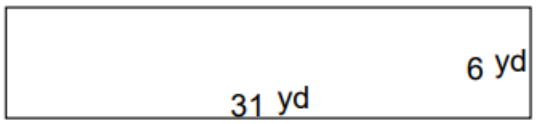
1. $\{(26 - 14) \times [(3 + 5) + 4]\} \div 4 =$ _____

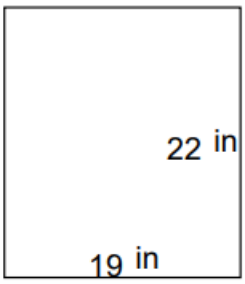
2. $20 \times \{6 - [(18 + 12 + 6) \div 9]\} =$ _____

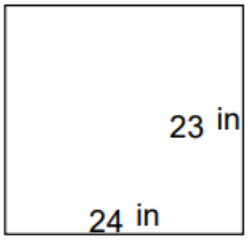
3. $3 \times \{12 - [2 \times (12 - 3 - 2 \times 3)] + 4\} =$ _____

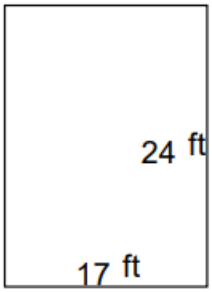
Week 8
Area and Perimeter of Shapes and the Coordinate Plane

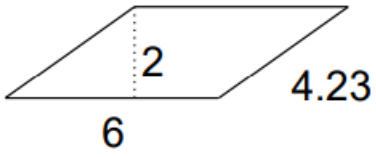
Find the perimeter and area of each rectangle.

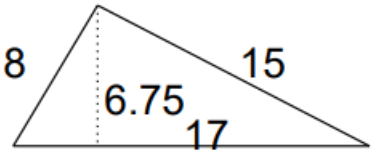
1. 

2. 

3. 

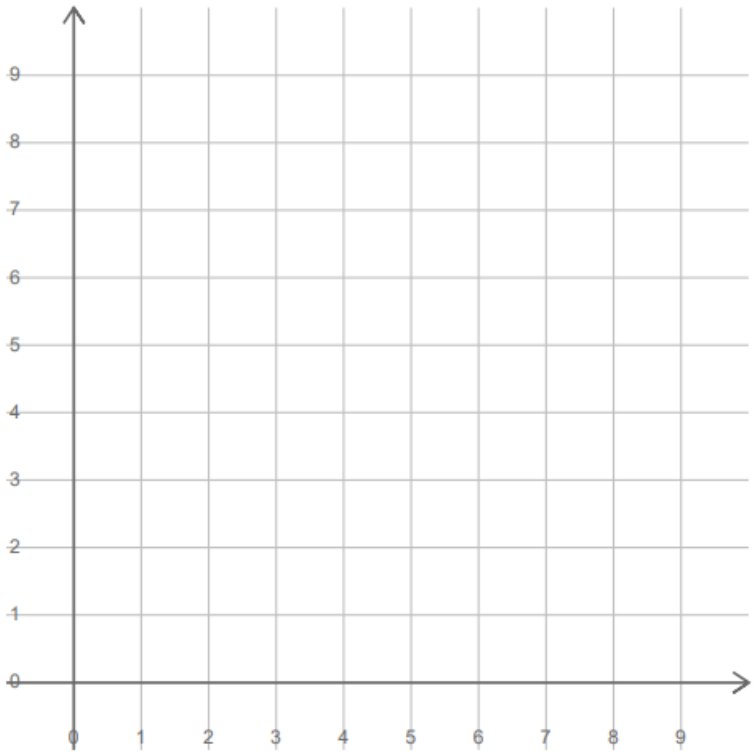
4. 

5. 

6. 

Plot the points shown on the grid.

7.



A = (7, 7)

B = (3, 0)

C = (2, 6)

D = (0, 7)

E = (6, 1)

F = (1, 9)

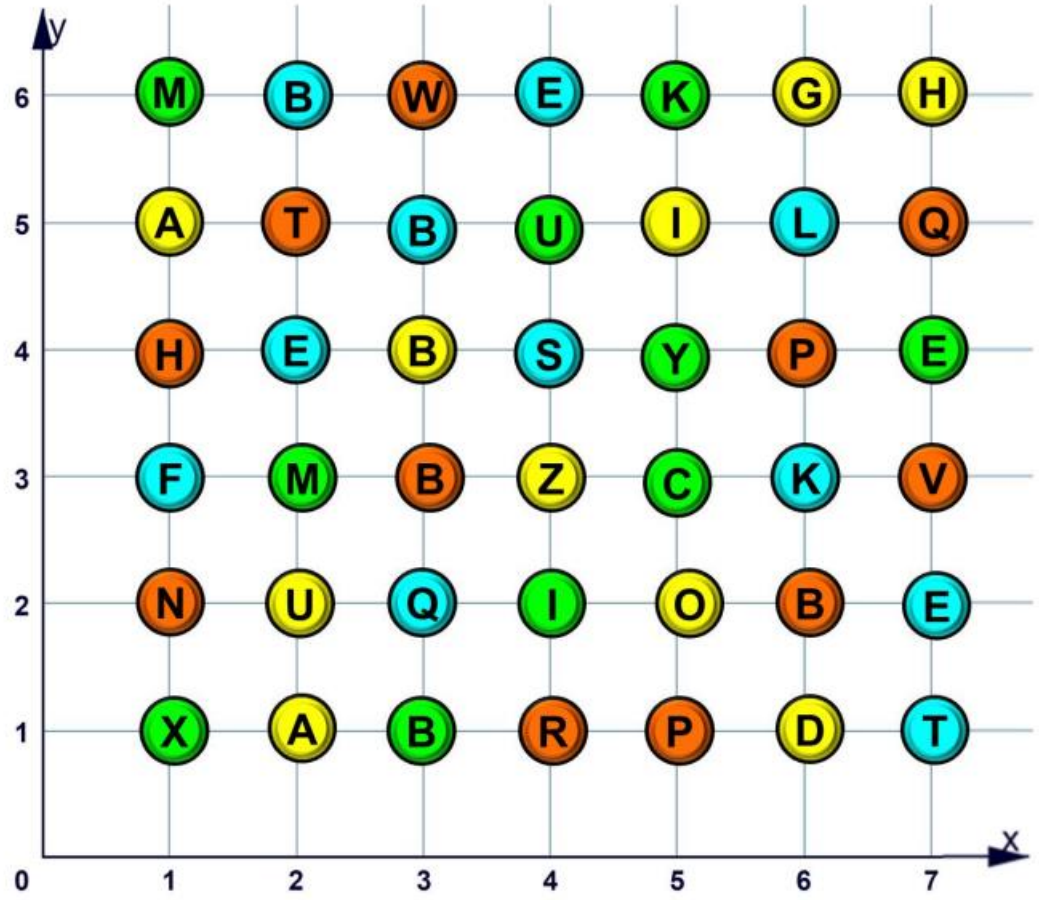
G = (4, 7)

H = (8, 5)

I = (7, 4)

J = (6, 3)

8. Find the mystery name of a famous mathematician: look up the coordinates and read the letters off of the buttons.



Mystery name:

(2,1)	(4,1)	(5,3)	(7,6)	(4,2)	(2,3)	(7,4)	(6,1)	(4,6)	(4,4)