

ANSWER: $\frac{1}{4}$ of the triangle

COMMENTS & EXTENSIONS: This diagram should explain the fraction shaded.





Try This

- Use Fraction Circle pieces to model each fraction.
- Put the fraction models together on the circle.
- Draw a picture of both fractions to show the sum.
- Write the sums.







Use Fraction Circles to build the model. Write the addends and the sum the model shows.



Use Fraction Circles to model the given addends. Join the pieces to find the sum. Sketch the model and write the sum.



3. Model the sum from Exercise 2 in simplest form. Sketch the model. Write the sum.



Find each sum. Write the answer in simplest form.





 $\frac{3}{4}$

Mental Math!

2

Estimate the following sums, using mental math.

- **a.** $\frac{1}{7} + \frac{1}{9}$ Is the sum closer to 0 or to 1?
- **b.** $\frac{3}{4} + \frac{1}{9}$ Is the sum closer to 1 or 2?
- **c.** $\frac{7}{8} + \frac{3}{4}$ Is the sum closer to 1 or 2?

ANSWER: a. 0; b. 1; c. 2

COMMENTS & EXTENSIONS: Classroom field-testing showed that for **a**., students saw that each of the numbers was less than $\frac{1}{4}$. Thus, their sum was less than $\frac{1}{2}$. Similar thinking can be used for **b**. and **c**.

Try This

Taller Towers

- Use Fraction Tower Cubes to model each fraction.
- Put the Fraction Towers together and show the sum on the tower outlines below.
- Show the sum with fewer same-color cubes, if possible, in the last tower outline.
- Write the sum in simplest form.



Addend	+	Addend	=	Sum	= 5	Simplest Su	Jm
		· · · · · · · · · · · · · · · · · · ·					
	 	1 1 1		1 1 1	 		
	, , , , ,				, , , , ,		
		 	_	 			
		1 1 1		1 1 1			
	!				!	!	

000

Addend + Addend = Sum = Sum in simplest form $\begin{array}{c} \hline \\ 1\\ \hline \\ 3\\ \hline \\ 4\\ \hline \\$





Use Fraction Tower Cubes to build the model. Write the addends and the sum. Then write the sum as a mixed number in simplest form.



Use Fraction Tower Cubes to model the addends. Join the pieces to find the sum. Sketch the model and write the sum. Then write the sum as a mixed number in simplest form.



Find each sum. Write the answer as a mixed number in simplest form.





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Name _	Answer	Кеу				
3 Use t	wo of these o	cards to r	make the frac	tion that i	S	
		1	2	3	4	
a.	closest to 1.	b	• closest to $\frac{1}{5}$. C.	closest to 5.	

ANSWER: a. $\frac{3}{4}$; b. $\frac{1}{4}$; c. $\frac{4}{1}$

COMMENTS & EXTENSIONS: Use number cards that have the digits 4, 9, 3, and 7. Answer the same three questions.

Subtract Fractions

Name Answer Key

Try This

esso

- Use Fraction Circle pieces to model and draw the first fraction.
- Draw arrows to show the fraction pieces taken away.
- Write the difference.





Challenge

Look at problems 5 and 6 above. Model, draw, and write the differences in simplest form.



Use Fraction Circles to build the model. Subtract the second fraction from the first. Write the difference.



Use Fraction Circles to model the problem. Draw the model. Write the difference.



Name Answer Key	
4	
Write these as mixed numbers.	
a. 2.4	
b. 13.7	
c. 9.04	
d. 11.9	

ANSWER: a. $2\frac{4}{10}$ b. $13\frac{7}{10}$ c. $9\frac{4}{100}$ d. $11\frac{9}{10}$

COMMENTS & EXTENSIONS: How about working backward? Show these mixed numbers as decimals.

a. $40\frac{3}{10}$; [40.3] **c.** $5\frac{17}{100}$; [5.17] **b.** $3\frac{1}{10}$; [3.1] **d.** $6\frac{8}{100}$; [6.08]

 $\mathcal{N}_{\mathcal{T}^{\gamma}}^{\gamma}$ Write seventeen and twenty-one hundredths as a decimal and then as a fraction.



Add Mixed Numbers

Try This

- Use Fraction Towers and the Fraction Number Line.
- Model the addition sentence.
- Arrange the towers if needed.
- Sketch your model and write the sum.



	1	1	<u>1</u> 2	$\frac{1}{2}$
(,	1 2	2	3

Find the sum. Write your answer as a mixed number.

4. $1\frac{3}{6} + 1\frac{1}{6} = \frac{2\frac{4}{6}}{3\frac{4}{8}}$ 5. $1\frac{5}{8} + 1\frac{7}{8} = \frac{3\frac{4}{8}}{7}$ 6. $4\frac{1}{4} + 2\frac{3}{4} = \frac{7}{7}$ 7. $3\frac{1}{10} + 5\frac{3}{10} = \frac{8\frac{4}{10}}{8\frac{10}{12}}$ 8. $6\frac{7}{12} + 2\frac{1}{12} = \frac{8\frac{8}{12}}{3\frac{1}{12}}$

Add and Subtract Fractions
Lesson 4



Use Fraction Towers to build the model on the Fraction Number Line. Fill in the blanks.



Use Fraction Towers to model the problem on the Fraction Number Line. Sketch the model. Fill in the blanks.



Write the sum.



6.
$$3\frac{5}{10} + 2\frac{3}{10} = \frac{5\frac{8}{10}}{4}$$

8. $1\frac{3}{4} + 2\frac{1}{4} = \frac{4}{4}$





COMMENTS & EXTENSIONS: This problem deals with the concept that once two points on a number line have been defined, the location of any other point is determined.

Show the location of the following numbers on the number line:

$$\frac{5}{4}, \frac{7}{3}, \text{ and } \frac{10}{3}$$



Subtract Mixed Numbers

Name __ Answer Key

Try This

- Use Fraction Towers and the Fraction Number Line to model the first number.
- Subtract the second number by removing Fraction Tower Cubes. (You might have to rename a whole using unit cubes.)
- Write the difference.



2.
$$1\frac{2}{3} - 1\frac{1}{3} = \frac{1}{3}$$

3.
$$1\frac{1}{6} - \frac{5}{6} = \underline{\frac{2}{6}}$$

Find each difference.

4. $1\frac{7}{12} - 1\frac{5}{12} = \frac{\frac{2}{12}}{\frac{1}{12}}$ **5.** $2\frac{5}{10} - 1\frac{3}{10} =$ **6.** $3\frac{5}{10} - 1\frac{3}{10} = \frac{2\frac{2}{10}}{2}$ **7.** $4\frac{7}{12} - 1\frac{1}{12} =$ _______ **8.** $9\frac{1}{8} - 4\frac{5}{8} =$ Add and Subtract Fractions
Lesson 5



Use Fraction Towers to build the model on the Fraction Number Line. Subtract by removing cubes. Cross out the cubes on the drawing that you subtract. Write the difference.



Use Fraction Towers to model the first number on the Fraction Number Line. Sketch the model. Subtract by removing cubes and by crossing out cubes on the sketch. Write the difference.



Find each difference.







ANSWER: a. 70; **b.** 50; **c.** 20

COMMENTS & EXTENSIONS: Here is a tough activity for students (Calculators, by all means, are allowed!): There are 52 weeks in a year, and there are 7 days in a week. This makes 364 days. How does this square with the fact that there are 365 days in a year?

There are 52 weeks and 1 day in a year. What is the most number of weekend days possible? [105]



Try This

- Use Base Ten Blocks to model the addends.
- Rename tenths as hundredths.
- Combine the models to find the sum.





- **2.** $\frac{5}{10} + \frac{4}{100} = \frac{\frac{50}{100}}{100} + \frac{\frac{4}{100}}{100} = \frac{\frac{54}{100}}{100}$
- **3.** $\frac{1}{100} + \frac{7}{10} = \frac{\frac{1}{100}}{\frac{1}{100}} + \frac{\frac{70}{100}}{\frac{1}{100}} = \frac{\frac{71}{100}}{\frac{1}{100}}$
- **4.** $\frac{9}{100} + \frac{6}{10} = \frac{\frac{9}{100}}{100} + \frac{\frac{60}{100}}{100} = \frac{\frac{69}{100}}{100}$
- **5.** $\frac{1}{10} + \frac{11}{100} = \frac{\frac{10}{100}}{100} + \frac{\frac{11}{100}}{100} = \frac{\frac{21}{100}}{100}$

6. Look at problems 1–5. Do you see a pattern that helps you rename tenths as hundredths? Without using Base Ten Blocks, explain how you would rename $\frac{8}{10}$ as hundredths.

Sample: I see that the numerator of the tenths fractions is multiplied by 10 to rename the fraction as hundredths.



Use Base Ten Blocks to build the model. Fill in the blanks.



Use Base Ten Blocks to model the given addends. Sketch the model and write the sum.





Name	Answer Key
7	
Mental	l Math!
a. T \$ to	wo adults and two children go to the movies. Tickets are 53.50 for adults and half price for children. What is the otal cost?
b. V to h	What would be the total cost for two adults and two children o go to the movies if the tickets were \$7.00 for adults and half price for children?

ANSWER: a. \$10.50; **b.** \$21.00

COMMENTS & EXTENSIONS: Suppose the total movie ticket cost was \$14 for each scenario. How many adults and how many children went to the movies in both **a.** and **b.**?

 $\mathcal{S}_{1}^{\gamma_{1}}$ Mental Math: What is the total cost for 10 adults and 10 children to go to the movies if the adult ticket price is \$9.00 and children's tickets are half price?



Try This

- Use Fraction Circle pieces to model each pizza story.
- Write an addition or subtraction number sentence for each story.
- Draw a picture of the sum or difference on the circle.
- 1. Mark ate $\frac{1}{4}$ of a cheese pizza. Karen ate $\frac{2}{4}$ of the same cheese pizza. How much pizza did they eat in all?

- $\frac{1}{4} + \frac{2}{4} = \frac{3}{4}$
- **3.** Kevin ate $\frac{3}{8}$ of a sausage pizza. Then he ate $\frac{4}{8}$ of the same sausage pizza. How much pizza did he eat?



 $\frac{3}{8} + \frac{4}{8} = \frac{7}{8}$

5. There was $\frac{7}{8}$ of a meat pizza on the buffet table. Bill ate $\frac{3}{8}$ of that pizza. How much of the meat pizza was left on the buffet table?



Write a pizza story. Ask a friend to draw a picture about your story and write a

2. Ross had $\frac{3}{6}$ of a spinach pizza. He gave $\frac{2}{6}$ of it to Rita. How much pizza was left?



- _
- 4. Tammy made a pepperoni pizza. She ate $\frac{4}{5}$ of the pizza. How much pizza was left?



 $1 - \frac{4}{5} = \frac{1}{5}; \frac{5}{5} - \frac{4}{5} = \frac{1}{5}$

6. Juan ate $\frac{3}{12}$ of a large black olive pizza. Donna ate $\frac{1}{12}$ of the same black olive pizza. How much pizza did they both eat?

 $\frac{3}{12} + \frac{1}{12} = \frac{4}{12}; \frac{3}{12} + \frac{1}{12} = \frac{1}{3}$



 $\frac{7}{8} - \frac{3}{8} = \frac{4}{8}; \frac{7}{8} - \frac{3}{8} = \frac{1}{2}$

Challenge

Answers will vary.

on



number sentence for it.



Use Fraction Circles to model the problem. Fill in the number sentence.

1. Lorenzo ate $\frac{1}{4}$ of a cheese pizza. Ariel ate $\frac{1}{4}$ of the same pizza. How much of the pizza did they eat in all?



Use Fraction Circles to model the problem. Draw the model. Fill in the number sentence.

2. Tommy ate $\frac{2}{5}$ of a mushroom pizza. How much of the pizza was left?



Write a number sentence and solve the problem.

- **3.** Howard made a sausage pizza. He ate $\frac{2}{6}$ of the pizza. How much of the pizza was left? $\frac{6}{6} - \frac{2}{6} = \frac{4}{6}; \frac{4}{6}$ of the pizza was left.
- **4.** There was $\frac{4}{10}$ of a pizza left on the kitchen counter. Molly ate $\frac{2}{10}$ of that pizza. How much of the pizza was left on the kitchen counter?

 $\frac{4}{10} - \frac{2}{10} = \frac{2}{10}; \frac{2}{10}$ of the pizza was left.

5. Noah ate $\frac{5}{8}$ of a pepperoni pizza. Nathan ate $\frac{1}{8}$ of the same pizza. How much of the pizza did Noah and Nathan eat in all?

 $\frac{5}{8} + \frac{1}{8} = \frac{6}{8}; \frac{6}{8}$ of the pizza.

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