

Name _____

Equivalent Fractions

Reteaching
9-1

Use multiplication to find an equivalent fraction:

$$\frac{7}{4} \times \frac{4}{4} = \frac{7}{12}$$

$$\frac{7}{3} = \frac{7}{12}$$

Use division to find an equivalent fraction.

$$\frac{12}{10} \div \frac{2}{2} = \frac{12 \div 2}{10 \div 2} = \frac{6}{5}$$

$$\frac{12}{10} = \frac{6}{5}$$

Use multiplication to find an equivalent fraction.

1. $\frac{8}{3}$ _____

2. $\frac{3}{1}$ _____

4. $\frac{2}{1}$ _____

5. $\frac{9}{5}$ _____

7. $\frac{11}{8}$ _____

8. $\frac{16}{7}$ _____

Use division to find an equivalent fraction.

10. $\frac{20}{15}$ _____

11. $\frac{18}{4}$ _____

13. $\frac{40}{32}$ _____

14. $\frac{100}{80}$ _____

16. $\frac{75}{15}$ _____

17. $\frac{48}{32}$ _____

Find two equivalent fractions for each given fraction.

19. $\frac{6}{3}$ _____

20. $\frac{9}{3}$ _____

22. $\frac{100}{75}$ _____

23. $\frac{2}{1}$ _____

25. $\frac{8}{6}$ _____

26. $\frac{24}{20}$ _____

28. Why do you have to multiply or divide both the numerator and denominator of a fraction to find an equivalent fraction?

Equivalent fractions name _____
the same amount.

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

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

Equivalent Fractions

Find two fractions equivalent to each fraction.

1. $\frac{6}{5}$ _____
2. $\frac{10}{20}$ _____
3. $\frac{45}{60}$ _____
4. $\frac{28}{32}$ _____
5. $\frac{8}{20}$ _____
6. $\frac{32}{16}$ _____
7. $\frac{60}{36}$ _____
8. $\frac{16}{48}$ _____
9. $\frac{3}{2}$ _____

10. Are the fractions $\frac{1}{5}$, $\frac{5}{5}$, and $\frac{1}{5}$ equivalent? Explain.

11. The United States currently has 50 states. What fraction of the states had become a part of the United States by 1795? Write your answer as two equivalent fractions.

12. In what year was the total number of states in the United States $\frac{5}{3}$ the number it was in 1960?

Year	Number of States
1795	15
1848	30
1900	45
1915	48
1960	50

Number of States in the United States

13. Which of the following pairs of fractions are equivalent?

- A $\frac{1}{10}, \frac{33}{3}$ B $\frac{5}{9}, \frac{9}{5}$ C $\frac{45}{5}, \frac{9}{1}$ D $\frac{8}{6}, \frac{34}{48}$

14. In what situation can you use only multiplication to find equivalent fractions to a given fraction? Give an example.

Name _____

Name _____

Fractions in Simplest Form

9-2
Reteaching

Write $\frac{24}{20}$ in simplest form. Divide by common factors.

- Divide by common factors until the only common factor is 1.
- You can start by dividing by 2, since both numbers are even.

$$\frac{24 \div 2}{20 \div 2} = \frac{12}{10}$$

But both 10 and 12 are also even, so they can be divided by 2.

$$\frac{12 \div 2}{10 \div 2} = \frac{6}{5}$$

- Since 5 and 6 do not have any common factors, $\frac{6}{5}$ is the simplest form.

$\frac{24}{20}$ written in simplest form is $\frac{6}{5}$.

Write each fraction in simplest form.

- $\frac{20}{16}$ _____
- $\frac{16}{8}$ _____
- $\frac{10}{5}$ _____
- $\frac{32}{8}$ _____
- $\frac{42}{18}$ _____
- $\frac{100}{15}$ _____
- $\frac{21}{18}$ _____
- $\frac{24}{40}$ _____
- $\frac{70}{55}$ _____

10. Explain how you can tell that $\frac{31}{33}$ is in simplest form.

Name _____

Fractions in Simplest Form

Practice
9-2

Write each fraction in simplest form.

1. $\frac{5}{10}$ _____
2. $\frac{24}{6}$ _____
3. $\frac{9}{27}$ _____
4. $\frac{15}{3}$ _____
5. $\frac{12}{10}$ _____
6. $\frac{15}{9}$ _____
7. $\frac{18}{2}$ _____
8. $\frac{60}{25}$ _____
9. $\frac{72}{12}$ _____

10. Explain how you can tell $\frac{5}{4}$ is in simplest form.

Write in simplest form.

11. What fraction of the problems on the math test will be word problems?

Math Test

- ➡ 20 Multiple-choice problems
- ➡ 10 Fill in the blanks
- ➡ 5 Word problems

12. What fraction of the problems on the math test will be multiple-choice problems?

13. Which is the simplest form of $\frac{10}{82}$?
- A $\frac{1}{8}$
 - B $\frac{22}{1}$
 - C $\frac{10}{82}$
 - D $\frac{41}{5}$

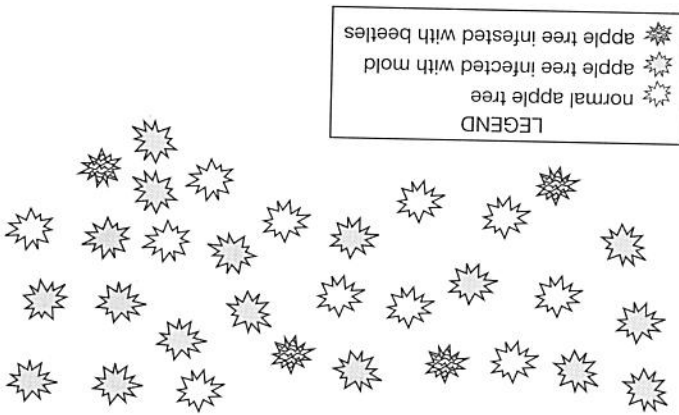
14. Explain how you can find the simplest form of $\frac{100}{1,000}$.

Problem Solving: Writing to Explain

Name _____

9-3
Reteaching

An environmental scientist is studying an old apple orchard. The orchard is shown on the right. Some of the trees are infested with mold. Other trees are infested with beetles. Some trees are normal.



The scientist knows that pictures and symbols can be used to write a good math explanation. So she decides to organize her findings in the chart on the right.

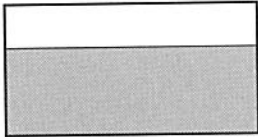
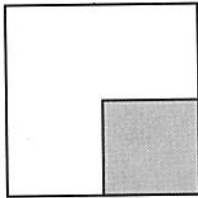
Use this chart to estimate the fractional part of the orchard that is infested with mold, using a benchmark fraction that is close to the actual amount.
A little more than half the grid is covered by trees that are infested with mold.

Use this chart to estimate the fractional part of the orchard that is infested with beetles. Explain how you decided.

Name _____

Problem Solving: Writing to Explain

Estimate the fractional part of the shaded portions below.
Explain how you decided.



3. Draw a square and shade about $\frac{1}{8}$ of it. How did you decide how much to shade?

4. Draw two rectangles that are different sizes. Shade about $\frac{1}{2}$ of each. Are the shaded parts the same amount? Explain.

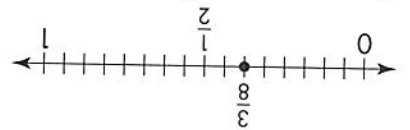
5. Look at a picture of the American flag. Approximately what part of the flag is blue? Explain.

Estimating Sums and Differences of Fractions

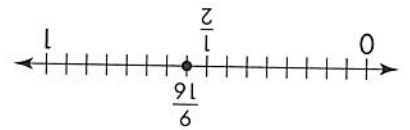
Name _____

To estimate the sum or difference of two fractions, replace each fraction with the nearest half or whole. You can use a number line to check whether each fraction is closest to 0 , $\frac{1}{2}$, or 1 . Estimate the sum of $\frac{3}{8} + \frac{16}{9}$.

Step 1: Find $\frac{3}{8}$ on the number line. Is $\frac{3}{8}$ closer to 0 or $\frac{1}{2}$? _____



Step 2: Find $\frac{16}{9}$ on the number line. Is $\frac{16}{9}$ closer to $\frac{1}{2}$ or to 1 ? _____

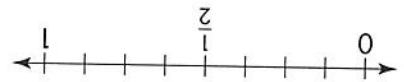


Step 3: Add to find the estimate. $\frac{1}{2} + \frac{1}{2} = 1$.

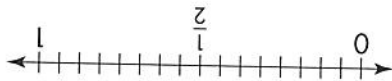
For **1** and **2**, complete each sentence to help you replace each fraction with the nearest half or whole. Use each number line to help.

1. $\frac{8}{7}$ is between _____ and _____ but _____ and _____ is between _____ and _____ but _____

is closer to _____. $\frac{8}{7}$ rounds to _____



is closer to _____. $\frac{16}{5}$ rounds to _____



For **3** through **10**, estimate each sum or difference by replacing each fraction with 0 , $\frac{1}{2}$, or 1 .

3. $\frac{5}{2} + \frac{4}{3}$

4. $\frac{8}{7} - \frac{9}{4}$

5. $\frac{2}{1} + \frac{7}{4}$

6. $\frac{12}{7} - \frac{9}{4}$

8. $\frac{3}{2} - \frac{8}{8}$

9. $\frac{9}{2} + \frac{5}{4}$

10. $\frac{8}{7} - \frac{6}{5}$

Estimating Sums and Differences of Fractions

In 1 through 8, tell if each fraction is closest to 0 , $\frac{1}{2}$, or 1 . You may use a number line to help.

1. $\frac{9}{1}$ _____
2. $\frac{9}{5}$ _____
3. $\frac{11}{20}$ _____
4. $\frac{10}{6}$ _____
5. $\frac{7}{6}$ _____
6. $\frac{12}{5}$ _____
7. $\frac{4}{3}$ _____
8. $\frac{15}{12}$ _____

In 9 through 16, estimate each sum or difference by replacing each fraction with 0 , $\frac{1}{2}$, or 1 .

9. $\frac{12}{7} + \frac{5}{4}$
10. $\frac{12}{1} + \frac{4}{2}$
11. $\frac{9}{4} - \frac{1}{1}$
12. $\frac{6}{2} + \frac{8}{9}$
13. $\frac{6}{1} - \frac{8}{1}$
14. $\frac{5}{2} - \frac{7}{3}$
15. $\frac{8}{7} - \frac{9}{7}$
16. $\frac{12}{5} + \frac{5}{2}$

17. Which is the best estimate for the difference of $\frac{16}{9} - \frac{9}{4}$?
 A $1 - 1 = 0$ C $1 - \frac{2}{1} = \frac{2}{1}$
 B $\frac{2}{1} - \frac{1}{2} = 0$ D $0 - 0 = 0$
 A $\frac{10}{10}$ B $\frac{6}{2}$
 C $\frac{10}{4}$ D $\frac{13}{24}$
18. Which fraction can NOT be replaced with $\frac{1}{2}$ when estimating?
 A $\frac{10}{10}$ B $\frac{6}{2}$
 C $\frac{10}{4}$ D $\frac{13}{24}$

19. Mia estimated $\frac{8}{5} + \frac{6}{1}$ by replacing $\frac{8}{5}$ with 1 and $\frac{6}{1}$ with 0 . Her estimated sum was $1 + 0 = 1$. Explain why Mia's estimate is NOT accurate.

Common Multiples and Least Common Multiple

A multiple of a number is a product of a given whole number and another whole number. The first four multiples of 3 are 3, 6, 9, and 12. A least common multiple (LCM) is the least number that is a common multiple of two or more numbers.

Find the least common multiple of 4 and 6.

Are there the same number of X's in each column? No.	XXXXXX	6	XXXX	4
Since the 1st column has fewer, add another set of 4 X's.	XXXXXX	6	XXXX	4
Are there the same number of X's in each column? No.	XXXXXX	6	XXXX	4
Since the 2nd column has fewer, add another set of 6 X's.	XXXXXX	6	XXXX	4
Are there the same number of X's in each column? Yes.	XXXXXX	6	XXXX	4
Since the columns are equal, the number of X's is the LCM. The LCM = 12.	XXXXXX	6	XXXX	4

Find the least common multiple of each number pair.

- 2 and 3
- 6 and 9
- 5 and 6
- 8 and 3

5. Can the LCM of 9 and 17 be less than 17? Explain.

Name _____

Common Multiples and Least Common Multiple

Find the LCM of each pair of numbers.

- | | |
|--------------|-------|
| 1. 3 and 6 | _____ |
| 2. 7 and 10 | _____ |
| 3. 8 and 12 | _____ |
| 4. 2 and 5 | _____ |
| 5. 4 and 6 | _____ |
| 6. 3 and 4 | _____ |
| 7. 5 and 8 | _____ |
| 8. 2 and 9 | _____ |
| 9. 6 and 7 | _____ |
| 10. 4 and 7 | _____ |
| 11. 5 and 20 | _____ |
| 12. 6 and 12 | _____ |

13. Rosario is buying pens for school. Blue pens are sold in packages of 6. Black pens are sold in packages of 3, and green pens are sold in packages of 2. What is the least number of pens she can buy to have equal numbers of pens in each color?

14. A punch recipe calls for equal amounts of pineapple juice and orange juice. Pineapple juice comes in 6-ounce cans and orange juice comes in 10-ounce cans. What is the least amount of each kind of juice that can be mixed without having any left over?

15. Dawn ordered 4 pizzas each costing between 8 and 12 dollars. What is a reasonable total cost of all 4 pizzas?
- A Less than \$24
B Between \$12 and \$24
C Between \$32 and \$48
D About \$70
16. Why is 35 the LCM of 7 and 5?

Finding Common Denominators

Name _____

9-6
Reteaching

How to find a common denominator:

Find a common denominator for $\frac{4}{3}$ and $\frac{10}{8}$.

List multiples of the denominators 10 and 8. Then look for a common multiple.

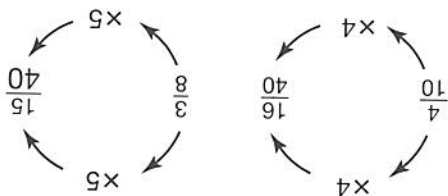
10: 10, 20, 30, 40
8: 8, 16, 24, 32, 40

The number 40 can be used as the common denominator.

How to rename fractions to have the same denominator:

Rename $\frac{10}{4}$ and $\frac{8}{3}$ using 40 as the common denominator.

Multiply the numerator and denominator by the same nonzero numbers.



The renamed fractions are $\frac{100}{40}$ and $\frac{120}{40}$.

In 1 through 8, find a common denominator for each pair of fractions.

1. $\frac{7}{2}$ and $\frac{1}{2}$
2. $\frac{5}{4}$ and $\frac{3}{3}$
3. $\frac{4}{3}$ and $\frac{6}{5}$
4. $\frac{8}{7}$ and $\frac{3}{10}$

5. $\frac{4}{3}$ and $\frac{16}{5}$
6. $\frac{1}{9}$ and $\frac{2}{1}$
7. $\frac{3}{2}$ and $\frac{1}{8}$
8. $\frac{20}{7}$ and $\frac{15}{15}$

In 9 through 16, find a common denominator for each pair of fractions. Then rename each fraction in the pair.

9. $\frac{10}{4}$ and $\frac{5}{1}$
10. $\frac{9}{4}$ and $\frac{6}{4}$
11. $\frac{1}{2}$ and $\frac{7}{1}$
12. $\frac{3}{2}$ and $\frac{18}{3}$

13. $\frac{16}{4}$ and $\frac{3}{2}$
14. $\frac{6}{1}$ and $\frac{4}{1}$
15. $\frac{20}{2}$ and $\frac{1}{8}$
16. $\frac{12}{7}$ and $\frac{15}{7}$

Finding Common Denominators

Name _____

Practice
9-6

1. $\frac{5}{2}$ and $\frac{4}{3}$ 2. $\frac{8}{5}$ and $\frac{9}{4}$ 3. $\frac{4}{1}$ and $\frac{7}{4}$ 4. $\frac{12}{5}$ and $\frac{9}{7}$

5. $\frac{15}{7}$ and $\frac{1}{3}$ 6. $\frac{1}{2}$ and $\frac{2}{3}$ 7. $\frac{9}{2}$ and $\frac{5}{4}$ 8. $\frac{8}{7}$ and $\frac{6}{5}$

9. $\frac{12}{3}$ and $\frac{8}{3}$ 10. $\frac{1}{8}$ and $\frac{7}{2}$ 11. $\frac{1}{2}$ and $\frac{9}{2}$ 12. $\frac{3}{1}$ and $\frac{5}{1}$

13. $\frac{9}{7}$ and $\frac{6}{1}$ 14. $\frac{6}{1}$ and $\frac{4}{3}$ 15. $\frac{8}{7}$ and $\frac{3}{2}$ 16. $\frac{8}{3}$ and $\frac{6}{5}$

17. Train A arrives at Central Station on the hour and every 12 minutes. Train B arrives on the hour and every 15 minutes. When do both trains arrive at the same time?

- A On the hour and 30 minutes past the hour
- B On the hour and 15 minutes past the hour
- C On the hour and 27 minutes past the hour
- D On the hour only

19. Manuel says that you can use one of the denominators of $\frac{6}{5}$ and $\frac{30}{11}$ when renaming these fractions using a common denominator. Why is this true?

- A $\frac{8}{28}$ and $\frac{28}{21}$
- B $\frac{28}{2}$ and $\frac{28}{3}$
- C $\frac{28}{4}$ and $\frac{28}{6}$
- D $\frac{7}{2}$ and $\frac{7}{3}$

18. Andrew wants to rename $\frac{7}{2}$ and $\frac{4}{3}$ using a common denominator. Which of the following shows these fractions renamed correctly?

In 9 through 16, find a common denominator for each pair of fractions. Then rename each fraction in the pair.

In 1 through 8, find a common denominator for each pair of fractions.

Adding Fractions with Unlike Denominators

Reteaching
9-7

Danisha ate $\frac{3}{2}$ cup of yogurt at breakfast. She ate $\frac{4}{1}$ cup of yogurt at lunch. How much yogurt did she eat today?

You can add fractions with unlike denominators.

<p>Step 1: Find the least common denominator of the two fractions.</p> <p>multiples of 3: 3, 6, 9, 12, 15 multiples of 4: 4, 8, 12, 16, 20</p> <p>8 + 3 = 11</p> <p>So, $\frac{12}{8} + \frac{12}{3} = \frac{12}{11}$</p>	<p>$\frac{3}{2} = \frac{12}{8}$ and $\frac{4}{1} = \frac{12}{3}$</p>
<p>Step 2: Once you have equivalent fractions with the same denominator, add the numerators.</p>	
<p>Step 3: Place the sum over the common denominator and simplify your fraction if possible.</p>	<p>Danisha ate $\frac{12}{11}$ cup of yogurt today.</p>

For 1 through 5, find each sum. Simplify if possible.

$$1. \quad \frac{3}{5} + \frac{1}{6} =$$

$$2. \quad \frac{9}{2} + \frac{6}{2} =$$

$$3. \quad \frac{8}{3} + \frac{8}{12} =$$

$$4. \quad \frac{4}{1} + \frac{6}{1} + \frac{4}{3} =$$

$$5. \quad \frac{9}{2} + \frac{9}{1} + \frac{6}{1} =$$

6. Kevin and some friends baked different loaves of bread and cut them into different numbers of slices. They ate $\frac{4}{1}$ of one loaf, $\frac{4}{1}$ of another, $\frac{12}{5}$ of another, and $\frac{12}{1}$ of another. Did they eat the equivalent of a whole loaf?

7. Cathy wakes up at 7:00 A.M. each morning. She spends $\frac{10}{1}$ hour making her bed, $\frac{5}{1}$ hour eating breakfast, and $\frac{2}{1}$ hour getting ready for school. How long does Cathy spend doing these things each morning?

Adding Fractions with Unlike Denominators

Find each sum. Simplify if necessary.

1. $\frac{9}{2} + \frac{3}{1}$ _____

2. $\frac{7}{1} + \frac{21}{3}$ _____

4. $\frac{4}{1} + \frac{3}{2}$ _____

5. $\frac{1}{12} + \frac{6}{4}$ _____

7. $\frac{6}{1} + \frac{12}{5}$ _____

8. $\frac{6}{4} + \frac{3}{1}$ _____

10. $\frac{4}{3} + \frac{9}{1}$ _____

11. $\frac{12}{6} + \frac{3}{1}$ _____

12. $\frac{8}{4} + \frac{2}{1}$ _____

Jeremy collected nickels for one week. He is making stacks of his nickels to determine how many he has. The thickness of one nickel is $\frac{1}{16}$ inch.

13. How tall is a stack of 16 nickels?

14. What is the combined height of 3 nickels, 2 nickels, and 1 nickel?

15. What is the sum of $\frac{5}{30} + \frac{6}{4}$?

- A $\frac{6}{5}$ B $\frac{9}{7}$ C $\frac{3}{2}$ D $\frac{9}{12}$

16. How do you rename $\frac{5}{2}$ so you can add it to $\frac{11}{25}$? What is the sum?

Name _____

Practice
9-7

Subtracting Fractions with Unlike Denominators

Find the difference. Simplify if necessary.

Practice

9-8

Name _____

1. $\frac{10}{12} - \frac{4}{1}$ _____

2. $\frac{10}{9} - \frac{5}{3}$ _____

3. $\frac{8}{7} - \frac{6}{2}$ _____

4. $\frac{12}{7} - \frac{4}{1}$ _____

5. $\frac{5}{4} - \frac{3}{1}$ _____

6. $\frac{3}{2} - \frac{6}{1}$ _____

7. $\frac{8}{4} - \frac{4}{1}$ _____

8. $\frac{10}{4} - \frac{5}{1}$ _____

9. $\frac{9}{9} - \frac{3}{2}$ _____

10. $\frac{15}{9} - \frac{3}{1}$ _____

11. $\frac{12}{4} - \frac{6}{1}$ _____

12. $\frac{20}{14} - \frac{5}{3}$ _____

13. The pet shop owner told Jean to fill her new fish tank $\frac{4}{3}$ full with water. Jean filled it $\frac{12}{9}$ full. What fraction of the tank does Jean still need to fill?

14. Paul's dad made a turkey potpie for dinner on Wednesday. The family ate $\frac{8}{4}$ of the pie. On Thursday after school, Paul ate $\frac{16}{2}$ of the pie for a snack. What fraction of the pie remained?

15. Gracie read 150 pages of a book. The book is 227 pages long. Which equation shows the amount she still needs to read to finish the story?

- A $150 - n = 227$
 B $227 + 150 = n$
 C $n - 150 = 227$
 D $n + 150 = 227$

16. Why do fractions need to have a common denominator before you add or subtract them?

Name _____

Subtracting Fractions with Unlike Denominators

You can subtract fractions with unlike denominators by using the least common multiple (LCM) and the least common denominator (LCD).

Beth wants to exercise for $\frac{5}{4}$ hour. So far, she has exercised for $\frac{3}{2}$ hour. What fraction of an hour does she have left to go?

Step 1: Find the LCM of 5 and 3.

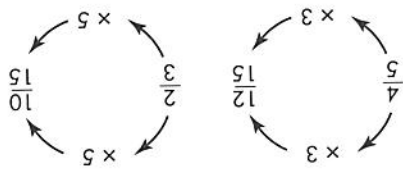
multiples of 5: 5, 10, 15, 20

multiples of 3: 3, 6, 9, 12, 15

Since 15 is the LCM, it is also

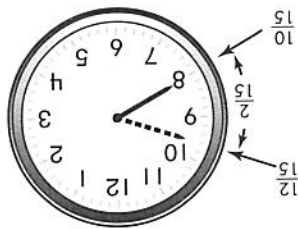
your LCD.

$$\frac{5}{4} = \frac{15}{12} \text{ and } \frac{3}{2} = \frac{15}{10}$$



Step 2: Using your LCD, write the equivalent fractions.

Step 3: Subtract the numerators. Place the difference over the LCD. Simplify if possible.



$$\frac{12}{15} - \frac{10}{15} = \frac{2}{15}$$

Beth has $\frac{2}{15}$ hour left.

1.

$$\frac{4}{3} - \frac{5}{2} =$$

2.

$$\frac{10}{7} - \frac{1}{5} =$$

3.

$$\frac{8}{8} - \frac{4}{9} =$$

4.

$$\frac{17}{18} - \frac{2}{3} =$$

In 1 through 7, find each difference. Simplify if possible.

5.

$$\frac{12}{7} - \frac{1}{4} =$$

6.

$$\frac{6}{5} - \frac{8}{3} =$$

7.

$$\frac{23}{24} - \frac{8}{7} =$$

8. Natasha had $\frac{8}{7}$ gallon of paint. Her brother Ivan took $\frac{4}{7}$ gallon to paint his model boat. Natasha needs at least $\frac{2}{1}$ gallon to paint her bookshelf. Did Ivan leave her enough paint?

More Adding and Subtracting Fractions

Name _____

Use what you know about adding and subtracting fractions to solve problems.

Carla wants to make a Veggie Toss using eggplant, green peppers, spring onions, and mushrooms. Besides the eggplant, how many pounds of the other ingredients does she need in all?

Use data from the recipe.

Step 1: Find the amount of green peppers and spring onions. $\frac{3}{1}$ and $\frac{4}{1}$

Step 2: To add these amounts, find a common denominator for both fractions and rewrite each fraction with that denominator.

$$\frac{3}{1} + \frac{4}{1} = \frac{12}{4} + \frac{12}{3} = \frac{12}{7}$$

Step 3: Add the amount of mushrooms to the sum from Step 2. Remember to rewrite the addends with a common denominator.

$$\frac{12}{7} + \frac{8}{3} = \frac{12}{14} + \frac{24}{9} = \frac{24}{23}$$

Carla needs $\frac{24}{23}$ pound of the other veggies in all.

For 1 through 3, use the Veggie Toss Recipe.

1. Suppose you wanted to make a Veggie Toss using spring onions and mushrooms. How many pounds of ingredients do you need?

2. How much more eggplant than mushrooms does the recipe call for?

3. How much more eggplant does the recipe call for than green peppers and spring onions combined? Show your work.

Veggie Toss Recipe

Eggplant	$\frac{4}{3}$ pound (lb)	
Green peppers	$\frac{3}{1}$ pound (lb)	
Spring onions	$\frac{4}{1}$ pound (lb)	
Mushrooms	$\frac{8}{3}$ pound (lb)	

Chop all ingredients to desired size. Toss eggplant with spring onions and in olive oil. Add green peppers and saute for 5 minutes. Add mushrooms. Stir. Cover. Simmer over medium low heat until cooked.

More Adding and Subtracting Fractions

Name _____

In 1 through 12, simplify each expression.

1. $\frac{6}{4} + \frac{9}{2}$ _____

2. $\frac{7}{2} + \frac{2}{1}$ _____

3. $\frac{12}{8} + \frac{6}{1}$ _____

4. $\frac{8}{3} + \frac{6}{1}$ _____

5. $\frac{1}{12} + \frac{9}{7}$ _____

6. $\frac{18}{4} + \frac{9}{2}$ _____

7. $\frac{3}{1} + \frac{4}{1}$ _____

8. $\frac{15}{5} + \frac{5}{3}$ _____

9. $\frac{2}{1} - \left(\frac{1}{8} + \frac{1}{1}\right)$ _____

10. $\frac{4}{3} + \left(\frac{4}{1} - \frac{6}{1}\right)$ _____

11. $\left(\frac{1}{1} + \frac{20}{3}\right) - \frac{20}{2}$ _____

12. $\left(\frac{5}{2} + \frac{5}{1}\right) - \frac{10}{3}$ _____

13. A plumber is fitting a water pipe that is $\frac{4}{3}$ foot long on to a water pipe that is $\frac{12}{2}$ foot long. How long will the finished pipe be?

14. Joel made some muffins. He gave $\frac{1}{3}$ of the muffins to a neighbor. He took $\frac{8}{3}$ of the muffins to school. What fraction of the muffins is left?

B $\frac{16}{8}$ foot

C $\frac{12}{2}$ foot

B $\frac{8}{3}$

A $\frac{4}{12}$

D $\frac{8}{8}$

C $\frac{12}{5}$

15. Carl has three lengths of cable, $\frac{6}{5}$ yard long, $\frac{1}{4}$ yard long, and $\frac{3}{2}$ yard long. He needs at least 1 yard of cable.

a Which two pieces together make a length at least 1 yard and closest to 1 yard?

b If Carl uses the two shortest pieces, how much more cable would he need?

c After Carl has used 1 yard of cable, how much cable will he have left? Explain how you found your answer.

Problem Solving: Draw a Picture and Write an Equation

Name _____

Read and Understand

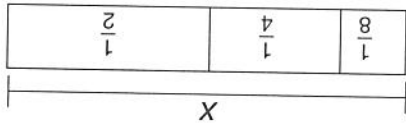
Pippa filled $\frac{8}{1}$ of a jar with blue stones, $\frac{4}{1}$ of the jar with yellow stones, and $\frac{2}{1}$ of the jar with purple stones. How much of the jar is filled in all?

What do I know? Pippa filled $\frac{8}{1}$, $\frac{4}{1}$, and $\frac{2}{1}$ of a jar.

What am I asked to find? How much of the jar is filled with stones?

Plan

Draw a picture and write an equation.



$$\frac{8}{1} + \frac{4}{1} + \frac{2}{1} = X$$

Find equal fractions and add. Simplify if you need to.

$$\frac{8}{1} + \frac{4}{1} + \frac{2}{1} = \frac{8}{1} + \frac{8}{2} + \frac{8}{4} = \frac{8}{7}$$

$$X = \frac{8}{7}$$

Pippa filled the jar $\frac{8}{7}$ full of stones.

Solve

Draw a picture and write an equation to solve.

1. Joel walked $\frac{5}{2}$ of a mile to the store, $\frac{10}{3}$ of a mile to the library, and $\frac{20}{1}$ of a mile to the post office. Let $x =$ the total distance Joel walked. How far did he walk?

2. Midge walked $\frac{8}{7}$ mile Monday and $\frac{5}{4}$ mile Tuesday. Let $x =$ how much farther she walked on Monday. How much farther did Midge walk on Monday?

3. Glenda wrote $\frac{7}{1}$ of her paper on Monday, $\frac{14}{1}$ of her paper on Tuesday, and $\frac{2}{28}$ of her paper on Wednesday. She said she wrote more than half of her paper. Is she correct? Why or why not?

Name _____

Problem Solving: Draw a Picture and Write an Equation

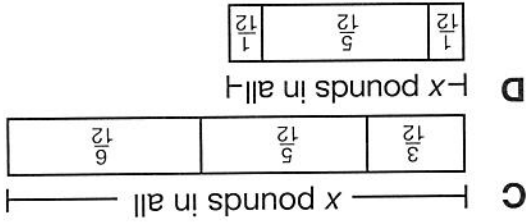
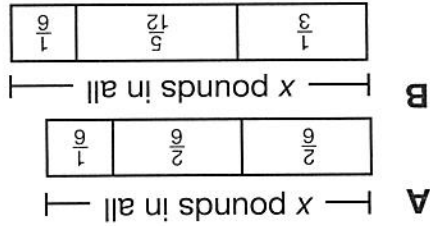
Draw a picture and write an equation to solve.

1. Jamie bought $\frac{8}{5}$ pound of wheat flour. He also bought $\frac{7}{4}$ pound of white flour. How much flour did he buy?

2. Katie is $\frac{5}{3}$ of the way to Brianna's house. Larry is $\frac{10}{7}$ of the way to Brianna's house. How much closer to Brianna's house is Larry?

3. Nina practiced the trumpet for $\frac{6}{1}$ hour. Santiago practiced the trumpet for $\frac{3}{2}$ hour. How much longer did Santiago practice than Nina?

4. Ned caught $\frac{3}{1}$ pound of fish. Sarah caught $\frac{12}{5}$ pound of fish. Jessa caught $\frac{6}{1}$ pound of fish. Which bar diagram shows how to find how many pounds of fish they caught in all?



5. In solving a fraction equation, John added the numerators of several fractions with unlike denominators. What should John have done first?