Adding Fractions with Unlike Denominators

12 Name: _____

Add.

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

13. What is a different common denominator you could use in problem 2? Describe how you would add the fractions using this different common denominator. Is the result equivalent to the sum found in problem 2?

Fluency and Skills Practice

Adding Fractions with Unlike Denominators

12 Name: _____

Add.

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

13. What is a different common denominator you could use in problem 2? Describe how you would add the fractions using this different common denominator. Is the result equivalent to the sum found in problem 2?

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Subtracting Fractions with Unlike Denominators

13 Name: _____

Subtract.

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

13. How could you check your work in problem 4? Describe each step.

Fluency and Skills Practice

Subtracting Fractions with Unlike Denominators

13 Name: _____

Subtract.

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

13. How could you check your work in problem 4? Describe each step.

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Name _____ Date _____

Fractions: Greatest Common Factor

Example: List the factors of 12 and 18. Circle the common factors. Write the greatest common factor (GCF).

Factors of 12: (1), (2), (3), 4, (6), 12

Factors of 18: (1), (2), (3), (6), 9, 18

Common Factors: (1), (2), (3), (6)

GCF=6

A **factor** is a number that another number can be divided by evenly.

List the factors of each pair of numbers. Circle the common factors. Find the greatest common factor (GCF).

1. 6: 4:
18: 12:
GCF:_____ GCF:_____

2. 12: 14:
18: 21:
GCF:_____ GCF:_____

3. 18: 24:
27: 32:
GCF:_____ GCF:_____

4. 9: 9:
12: 15:
GCF:_____ GCF:_____

5. 15: 15:
20: 40:
GCF:_____ GCF:_____

6. 14: 15:
35: 35:
GCF:_____ GCF:_____

Name _____ Date _____

Fractions: Least Common Multiple

The least common multiple (LCM) is the smallest number that is a multiple of two or more numbers.

Example: Find the LCM of 6 and 8.
- List some multiples of 6 and 8.
- Circle the common multiples.
- Write the least common multiple (LCM).

Multiples of 6: 6, 12, 18, (24), 30, 36, 42, (48)
Multiples of 8: 8, 16, (24), 32, 40, (48)

LCM = 24

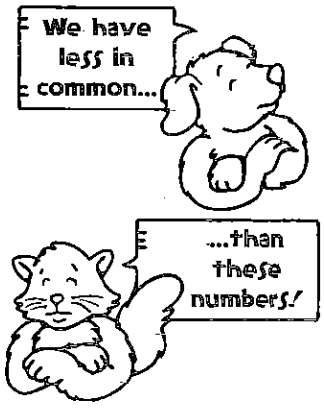
Find the least common multiple (LCM) of each pair of numbers.

1. 6: 4:
2: 8:
LCM:_____ LCM:_____

2. 5: 4:
3: 6:
LCM:_____ LCM:_____

3. 8: 6:
12: 10:
LCM:_____ LCM:_____

4. 12: 10:
20: 15:
LCM:_____ LCM:_____



Find the least common multiple (LCM) of each set of numbers.

5. 6: 4:
5: 9:
15: 18:
LCM:_____ LCM:_____

6. 8: 10:
10: 15:
20: 30:
LCM:_____ LCM:_____

Super-Journal Week 3:1

Every night, you should be reading at least 30 minutes of whatever book you have checked out from your assigned reading list. Tape or glue (but do not staple) this sheet into your Super-Journal on the left-side page. Fill in the table below *every day* by recording the required data.

Day	Title	Start Pg.	End Pg.	**Parent Sign.**
Monday				
Tuesday				
Wednesday				
Thursday				
Friday				
Saturday				
Sunday				

On the right-side page of your Super-Journal, answer one of the questions below throughout the week. Be sure that the questions you choose to answer go with the appropriate type of book (Fiction or Nonfiction).

FICTION

1. You will be making **2 whole page colorful illustrations** based off of 2 separate quotes from your reading. Each illustration should take an entire page and should be **colored.** Make sure that you write the quote, and the **page number** you got your quote from at the bottom of each colorful illustration.

NONFICTION

1. What is this text about?
2. Summarize the main ideas in 5 sentences.

RL.3.7/RI.1.2

Super-Journal Week 3:1

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FICTION

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NONFICTION

1. What is this text about?
2. Summarize the main ideas in 5 sentences.

RL.3.7/RI.1.2

Estimate Sums and Differences of Fractions

Name _____

Review

You can use benchmark fractions to estimate sums and differences of fractions.

Is the Sum Greater than 1?	Estimate the Sum
Consider $\frac{8}{9} + \frac{9}{11}$.	Consider $\frac{8}{9} + \frac{9}{11}$.
$\frac{8}{9}$ is greater than $\frac{1}{2}$.	$\frac{8}{9}$ is close to 1.
$\frac{9}{11}$ is greater than $\frac{1}{2}$.	$\frac{9}{11}$ is close to 1.
This means $\frac{8}{9} + \frac{9}{11}$ is greater than 1.	This means $\frac{8}{9} + \frac{9}{11}$ is close to 2.

Will the sum be greater than 1 or less than 1? Use benchmark fractions to justify your answer.

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

2. $\frac{2}{5} + \frac{3}{7}$

Use estimation to determine whether each solution is reasonable.

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

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

5. $\frac{3}{4} + \frac{1}{6} = \frac{11}{12}$

6. $\frac{3}{5} - \frac{3}{10} = \frac{1}{2}$

Estimate Sums and Differences of Fractions

Name _____

Match the estimates in Column A to the actual sum or difference in Column B.

Column A	Column B
A fraction that is slightly less than $\frac{1}{2}$ is added to a fraction that is slightly less than $\frac{1}{2}$.	$1\frac{4}{5} + \frac{2}{3}$
A fraction that is slightly less than 1 is added to a fraction that is slightly less than 1.	$\frac{4}{5} + \frac{3}{4}$
A fraction that is slightly less than $\frac{1}{2}$ is subtracted from a fraction that is slightly less than $\frac{1}{2}$.	$1\frac{5}{13} - \frac{4}{7}$
A fraction that is slightly less than 2 is added to a fraction that is slightly less than 1.	$\frac{3}{7} - \frac{2}{9}$
A fraction that is slightly more than $\frac{1}{2}$ is subtracted from a fraction that is slightly less than $1\frac{1}{2}$.	$\frac{2}{5} + \frac{1}{3}$
A fraction that is slightly more than $1\frac{1}{2}$ is added to a fraction that is slightly more than $1\frac{1}{2}$.	$2\frac{1}{9} - \frac{10}{11}$
A fraction that is slightly less than 1 is subtracted from a fraction that is slightly more than 2.	$1\frac{3}{5} + 1\frac{7}{12}$

Day 1: *Transformed by Temperature* – Probe Name: _____ Date: _____

Essential Question:

- How do different conditions affect the dissolving process of various materials?
- How can temperature affect physical and chemical changes in matter?

Learning Goals:

- I can **investigate** and **identify** materials that dissolve in water and those that do not.
- I can **identify** conditions that will speed up or slow down the dissolving process.
- I can **investigate** and **describe** how physical and chemical changes are affected by temperature

Vocabulary: boiling, characteristics, chemical changes, condensation, conditions, dissolve, evaporation, freezing, matter, melting, mixture, physical changes, reaction, repeated trails, temperature

Probe: Salt Water

Deanna stirred a teaspoon of salt into a glass of warm water. The salt completely dissolved in the water. Put an **X** next to the statement(s) that are true about the dissolved salt.

_____ **A** The salt melts.
_____ **B** The salt loses mass.
_____ **C** The salt forms a mixture with water.
_____ **D** The salt can be separated from the water.
_____ **E** The salt disappears and no longer exists.

Day 1: Explain your thinking. **Describe** what happens to salt water when it is stirred in water.

_____

_____

_____

Create illustrations below of what you think the cup looked like **before** Deanna stirred the salt into the water, **during** the stirring process, and **after** the salt dissolved in the water.

Before adding salt	**During** the stirring process	**After** stirring the salt

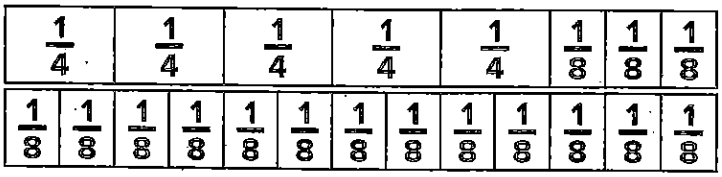
Represent Addition of Fractions with Unlike Denominators

Name _____

Review

Consider $\frac{5}{4} + \frac{3}{8}$. Use fraction tiles to solve.

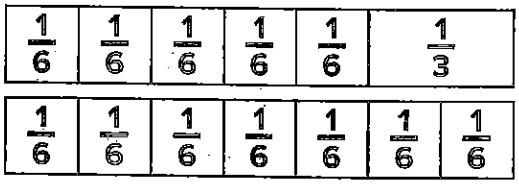
You can use equivalent fractions to write fractions with like denominators.



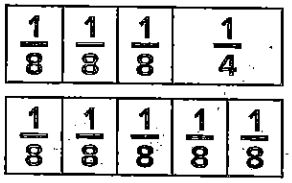
Therefore, $\frac{5}{4} + \frac{3}{8} = \frac{13}{8}$.

What equation do the fraction tiles represent? Write the equation and solve.

1.



2.



Solve the equation using fraction tiles.

3. $\frac{4}{5} + \frac{3}{10} =$ _____

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

5. $\frac{5}{9} + \frac{2}{3} =$ _____

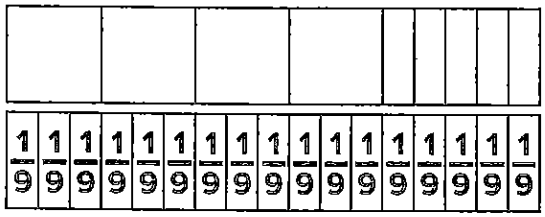
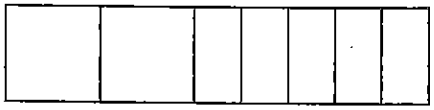
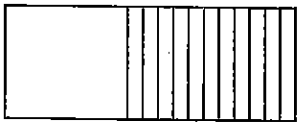
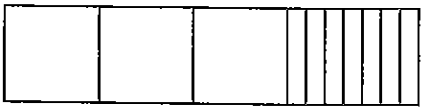
6. $\frac{7}{8} + \frac{3}{4} =$ _____

Represent Addition of Fractions with Unlike Denominators

Name _____

The first one is done for you as an example.

Write the equation for the sum shown in the fraction tiles. The key shows the value of one of the tiles.

	Fraction Tiles	Key	Column B
1.		$\frac{1}{3}$	$\frac{4}{3} + \frac{5}{9} = \frac{17}{9}$
2.		$\frac{1}{5}$	
3.		$\frac{1}{14}$	
4.		$\frac{1}{24}$	
5.		$\frac{1}{6}$	

Day 2: *Transformed by Temperature* – Dissolving Name: _____ Date: _____

Essential Question: How do different conditions affect the dissolving process of various materials? How can temperature affect physical and chemical changes in matter?

Read and **annotate** the text below about mixtures from blue ScienceSaurus page 258.

Oatmeal, milk, and sugar form a mixture. A mixture is a combination of two or more substances that do not form a new substance. If the combination did form a new substance, it would be called a compound. Each substance in a mixture keeps its own chemical properties. For example, you can taste the sugar in your bowl of oatmeal because the sugar has not changed. It has kept its properties including its sweet taste.

The substances in a mixture can be separated from each other easily you can separate the oatmeal from the milk and the sugar bypassing all three through a strainer. The oatmeal would get trapped in the strainer but the milk and the sugar would pass through it.

Directions: Record the length of time **(in seconds)** it took each substance to dissolve. If the substance did not dissolve after 4 minutes, write **"did not dissolve"** in the box. **Repeat** the procedure three times for salt, sugar and sand. After the third trial for each substance, **include** a **sketch** of what you observed. Once all trials are completed, find the average for each substance.

To Dissolve or Not to Dissolve – Part 1

	Salt	Sugar	Sand
Trial 1			
Trial 2			
Trial 3			
Sketch and label your observations.			
Average Time			

Reflect: Did each substance tested form a mixture with water? **Explain** your thinking.

_____

_____

_____

_____

Day 3: *Transformed by Temperature* – Dissolving Name: _____ Date: _____

Essential Question: How do different conditions affect the dissolving process of various materials? How can temperature affect physical and chemical changes in matter?

Read and **annotate** the text below about solutions from page 259 of the blue *ScienceSaurus*.

A solution is a special kind of mixture. A solution is a mixture with one substance spread out evenly in another substance. The substances are spread out so evenly that you cannot tell one from the other. For example, when you start sugar into milk the sugar seems to disappear, but if you take them taste the milk, it tastes sweet. That means the sugar is in the milk. The sugar hasn't changed. It has become invisible because it is dissolved in the milk. Dissolved means to form a solution with another substance when sugar dissolves in milk the sugar molecules spread out so evenly in the milk that they can no longer form visible grains of sugar.

Predict. Do you think the temperature of the water will affect the time it takes for a material to dissolve?

_____

_____

_____

Record the length of time (in seconds) it took each substance to dissolve. If the substance did not dissolve after 4 minutes, write "did not dissolve" in the box. **Repeat** the procedure three times for salt, sugar and sand. After the third trial for each substance, **include** a **sketch** of what you observed.

To Dissolve or Not to Dissolve – Part 2

Variable: _____

	Salt	Sugar	Sand
Trial 1			
Trial 2			
Trial 3			
Sketch and label your observations.			
Average Time			

Reflect: What role does temperature play in the dissolving process? **Explain** using evidence collected.

_____

_____

_____

Day 4: *Transformed by Temperature* – Surface Area Name: _____ Date: _____

Essential Question: How do different conditions affect the dissolving process of various materials? How can temperature affect physical and chemical changes in matter?

Predict. Does the surface area of antacid table, whole or broken into pieces, affect the amount of time it takes for an antacid tablet to dissolve? **Explain.**

_____

_____

_____

_____

Record the length of time (in seconds) it took each tablet, whole or broken, to dissolve. **Repeat** the procedure three times to complete each trial. After the third trial, find the average time, in seconds, the whole and broken tablet took to dissolve.

Antacid Surface Area Investigation

Time (in seconds)	Whole Tablet	Broken Tablet
Trial 1		
Trial 2		
Trial 3		
Average Time (in seconds)		

Reflection: What were the results of your investigation? How does surface area affect the dissolving rate?

_____

_____

_____

_____

Lesson 9-3 • Reinforce Understanding

Add Fractions with Unlike Denominators

Name _____

Review

You can make a table to help find the lowest common multiple for the denominator.

Consider $\frac{5}{12} + \frac{3}{8}$. It has denominators 12 and 8.

The first number that appears in both rows is 24. Make equivalent fractions with like denominators of 24.

	× 1	× 2	× 3	× 4
12	12	24	36	48
8	8	16	24	32

$\frac{5}{12} + \frac{3}{8} = \frac{19}{24}$

$$\frac{5}{12} + \frac{3}{8} = \frac{5 \times 2}{12 \times 2} + \frac{3 \times 3}{8 \times 3}$$
$$= \frac{10}{24} + \frac{9}{24}$$
$$= \frac{19}{24}$$

What is the sum? Use a table to find the lowest common multiple.

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

2. $\frac{2}{9} + \frac{3}{4} =$ _____

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

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

5. $\frac{3}{10} + \frac{5}{6} =$ _____

6. $\frac{5}{6} + \frac{4}{15} =$ _____

7. $\frac{7}{12} + \frac{5}{8} =$ _____

8. $\frac{2}{11} + \frac{1}{4} =$ _____

Lesson **9-3 • Extend Thinking**

Add Fractions with Unlike Denominators

Name _____

Fill in the missing values to complete each equation. The first one is done as an example. Show your work.

1. $\frac{5}{6} + \frac{2}{?} = \frac{?}{18}$ *or* $\frac{?}{?}$

$\frac{5}{6} + \frac{2}{?} = \frac{?}{6 \times 3}$

$\frac{5}{6} + \frac{2}{3} = \frac{?}{6 \times 3}$

$\frac{5 \times 3}{6 \times 3} + \frac{2 \times 6}{3 \times 6} = \frac{?}{6 \times 3}$

$\frac{15}{18} + \frac{12}{18} = \frac{27}{18}$ *or* $\frac{3}{2}$

2. $\frac{2}{\square} + \frac{3}{7} = \frac{\square}{35}$

3. $\frac{9}{\square} + \frac{1}{4} = \frac{\square}{40}$ *or* $\frac{?}{?}$

4. $\frac{11}{5} + \frac{\square}{2} = \frac{37}{\square}$

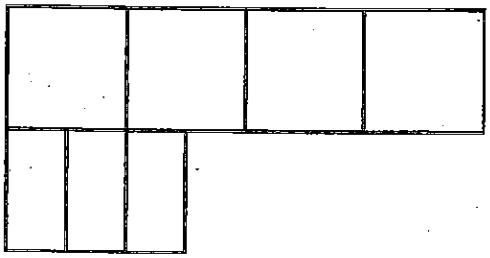
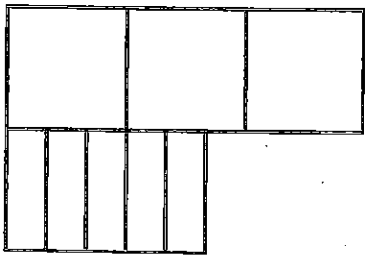
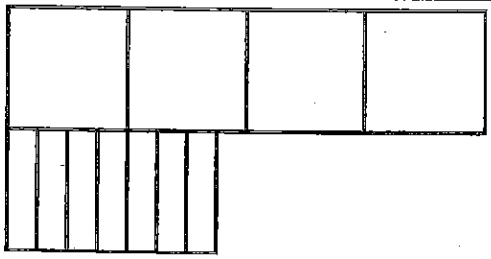
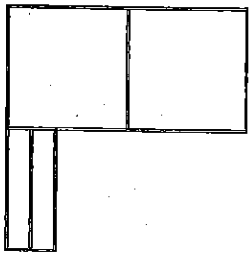
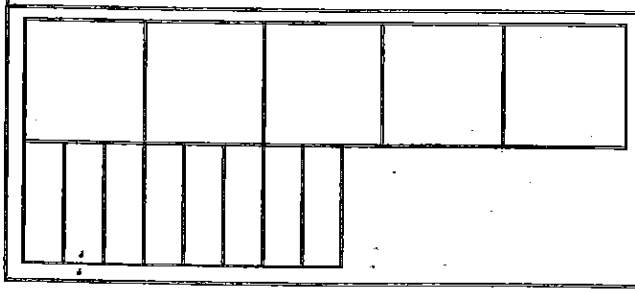
5. $\frac{4}{9} + \frac{\square}{4} = \frac{25}{\square}$

6. $\frac{\square}{8} + \frac{\square}{6} = \frac{29}{24}$

Represent Subtraction of Fractions with Unlike Denominators

Name _____

What is the subtraction equation for the fraction tiles? The first one is done as an example.

	Fraction Tiles	Key	Column B
1.		$\frac{1}{10}$	$\frac{4}{5} - \frac{3}{10} = \frac{5}{10}$ or $\frac{4}{5} - \frac{3}{10} = \frac{1}{2}$
2.		$\frac{1}{2}$	
3.		$\frac{1}{3}$	
4.		$\frac{1}{15}$	
5.		$\frac{1}{3}$	

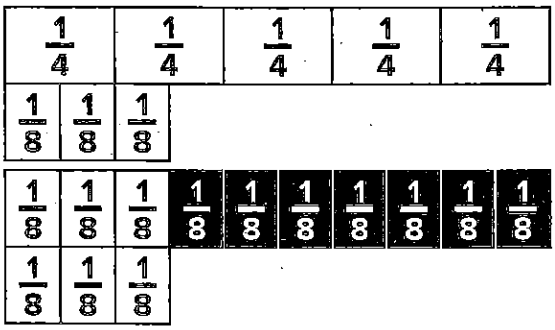
Represent Subtraction of Fractions with Unlike Denominators

Name _____

Review

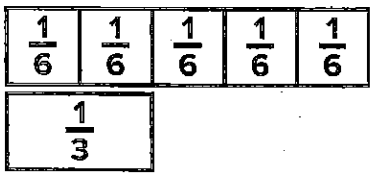
Consider $\frac{5}{4} - \frac{3}{8}$. Use fraction tiles to solve.

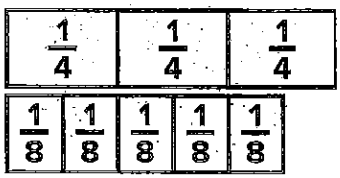
You can use equivalent fractions to write fractions with like denominators.



Therefore, $\frac{5}{4} - \frac{3}{8} = \frac{7}{8}$.

What difference equation do the fraction tiles represent. Write the equation with like denominators.

1. 

2. 

What is the difference? Use fraction tiles to help you subtract.

3. $\frac{3}{4} - \frac{7}{12} =$ _____

4. $\frac{4}{5} - \frac{3}{10} =$ _____

5. $\frac{5}{9} - \frac{1}{6} =$ _____

6. $\frac{7}{8} - \frac{3}{4} =$ _____

Subtract Fractions with Unlike Denominators

Name _____

Fill in the missing values to complete each equation. The first one is done as an example for you. Show your work.

1. $\frac{7}{9} - \frac{2}{?} = \frac{?}{45}$

$\frac{7}{9} - \frac{2}{?} = \frac{?}{9 \times 5}$

$\frac{7}{9} - \frac{2}{5} = \frac{?}{9 \times 5}$

$\frac{7 \times 5}{9 \times 5} - \frac{2 \times 9}{5 \times 9} = \frac{?}{9 \times 5}$

$\frac{35}{45} - \frac{18}{45} = \frac{17}{45}$

2. $\frac{5}{\square} - \frac{1}{3} = \frac{\square}{33}$

3. $\frac{3}{\square} - \frac{2}{5} = \frac{\square}{35}$

4. $\frac{9}{5} - \frac{\square}{3} = \frac{17}{\square}$

5. $\frac{7}{9} - \frac{\square}{8} = \frac{11}{\square}$

6. $\frac{\square}{4} - \frac{\square}{6} = \frac{7}{12}$

Subtract Fractions with Unlike Denominators

Name _____

Review

You can make a table to help find a common multiple for the denominator.

Consider $\frac{5}{12} - \frac{3}{8}$. It has denominators 12 and 8.

The first number that appears in both rows is 24. Make equivalent fractions with like denominators of 24.

	× 1	× 2	× 3	× 4
12	12	24	36	48
8	8	16	24	32

$\frac{5}{12} - \frac{3}{8} = \frac{1}{24}$

$$\frac{5}{12} - \frac{3}{8} = \frac{5 \times 2}{12 \times 2} - \frac{3 \times 3}{8 \times 3}$$
$$= \frac{10}{24} - \frac{9}{24}$$
$$= \frac{1}{24}$$

What is the difference? Use a table to find a common multiple.

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

2. $\frac{11}{12} - \frac{3}{4} =$ _____

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

4. $\frac{5}{6} - \frac{5}{9} =$ _____

5. $\frac{2}{3} - \frac{5}{12} =$ _____

6. $\frac{4}{5} - \frac{1}{2} =$ _____

7. $\frac{9}{10} - \frac{1}{6} =$ _____

8. $\frac{5}{8} - \frac{2}{11} =$ _____