



Addition and Subtraction of Rational Numbers—Part 1

Student Activity

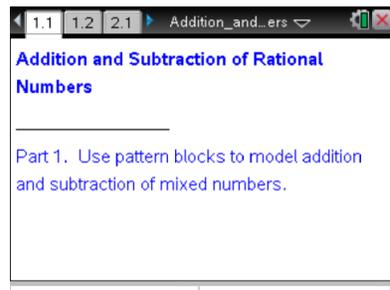
Name _____

Class _____

Open the TI-Nspire document

Addition_and_Subtraction_of_Rational_Numbers.tns.

In this activity, you will model operations (addition and subtraction) with mixed numbers by using pattern blocks.



Move to page 1.2.

Press **ctrl** and **ctrl** to navigate through the lesson.

Page 1.2 will help you model addition and subtraction of mixed numbers. It is divided into two work areas.

- In the top work area, you are given an expression to evaluate and a set of pattern blocks.
 - The work area below the line is reserved for modeling the problem by *using* the pattern blocks.
 - The message at the bottom of the page gives you suggestions for the next step you need to do in order to evaluate the given expression.
1. Consider the yellow hexagon to have a value of 1. For each shape shown on Page 1.2, record the value of the fractional representations in the table below.

| Pattern Block | Fraction |
|---------------|----------|
| | 1 |
| | |
| | |
| | |
| | |

To model the problems using the pattern blocks:

- Move a pattern block from the top work area by clicking and dragging the black point.
- Rotate a pattern block in the bottom work area by clicking and dragging the white circle. A block must be moved from its initial position in the top work area before it can be rotated.
- For each correctly modeled mixed number, you will receive a checkmark.
- For each problem, show your solution on this worksheet using colored pencils.

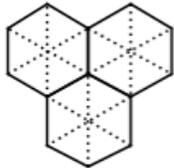


**Addition and Subtraction of
Rational Numbers—Part 1
Student Activity**

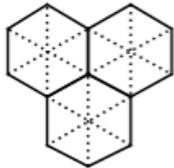
Name _____
Class _____

2. Find the value of $2\frac{1}{6} + 1\frac{2}{3}$ using the pattern blocks on Page 1.2.

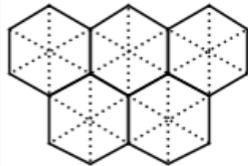
a. Which pattern blocks did you use to model the first mixed number?



b. Which pattern blocks did you use to model the second mixed number?



c. Which pattern blocks did you use to model the sum of the two mixed numbers?

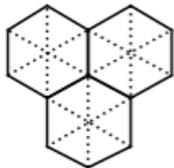


d. Explain how your visual representation of the sum is equivalent to the numerical representation of the sum.

3. Click the right arrow in the top right corner of Page 1.2 to get a new addition problem. Record your problem below. Find the value of your new problem using the pattern blocks on Page 1.2, and answer the questions below. Record your calculation sequence and numerical answer for all parts of this problem

Record your problem:

a. Which pattern blocks did you use to model the first mixed number?



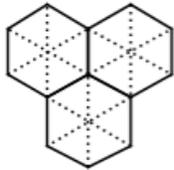


**Addition and Subtraction of
Rational Numbers—Part 1
Student Activity**

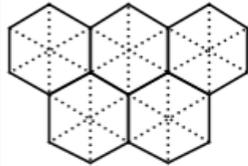
Name _____

Class _____

- b. Which pattern blocks did you use to model the second mixed number?



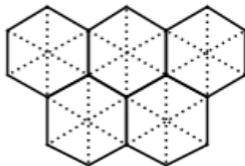
- c. Which pattern blocks did you use to model the sum of the two mixed numbers?



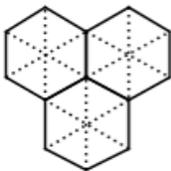
- d. Explain how your visual representation of the sum is equivalent to the numerical representation of the sum.

4. Click the down arrow in the top left corner of Page 1.2 to generate the subtraction problem, $4\frac{1}{6} - 1\frac{1}{2}$. Evaluate the difference, and answer the questions below (use colored pencils to record your block patterns).

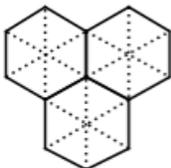
- a. Which pattern blocks did you use to model the first mixed number?



- b. Which pattern blocks did you use to model the second mixed number?



- c. Which pattern blocks did you use to model the difference of the two mixed numbers?





**Addition and Subtraction of
Rational Numbers—Part 1
Student Activity**

Name _____

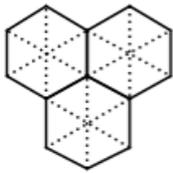
Class _____

- d. Explain how your visual representation of the difference is equivalent to the numerical representation of the sum.

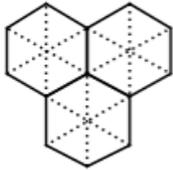
5. Click the right arrow in the top right corner of Page 1.2 to generate a new subtraction problem. Record your problem below. Find the value of your new problem using the pattern blocks on Page 1.2, and answer the questions below. Record your calculation sequence and numerical answer for all parts of this problem.

Record your problem:

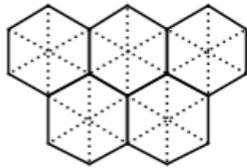
- a. Which pattern blocks did you use to model the first mixed number?



- b. Which pattern blocks did you use to model the second mixed number?



- c. Which pattern blocks did you use to model the difference of the two mixed numbers?



- d. Explain how your visual representation of the difference is equivalent to the numerical representation of the difference.