



Addition and Subtraction of Rational Numbers—Part 1

Student Activity   

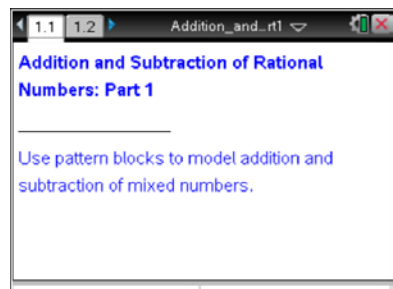
Name _____

Class _____

Open the TI-Nspire document

Add_Sub_Rational_Numbers_Part1.tns.






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



Move to page 1.3.

Page 1.3 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 1.3, 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 grabbing and dragging it to the desired location.
- After blocks are moved from their initial position, they can be rotated selecting the tool box on the top box on the left to change to the rotation tool and selecting a tile.
- For each correctly modeled mixed number, you will receive a checkmark.
- For each problem, show your solution on this worksheet using colored pencils.



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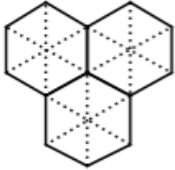


Name _____

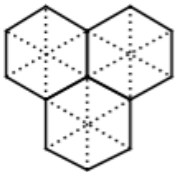
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2. Find the value of $2\frac{1}{6} + 1\frac{2}{3}$ using the pattern blocks on page 1.3.

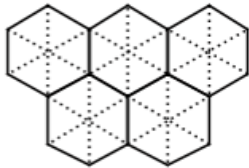
- a. Which pattern blocks did you use to model the first mixed number?



- 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?

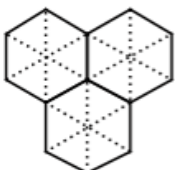


- d. Explain how your visual representation of the sum is equivalent to the numerical representation of the sum.

3. Select the **(N)ew** box in the top right corner of page 1.3 to get a new addition problem. Record your problem below. Find the value of your new problem using the pattern blocks on page 1.3, 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?





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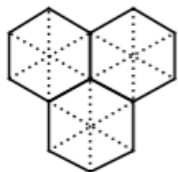
Student Activity



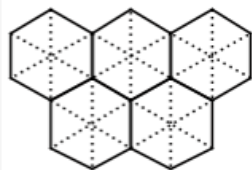
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- b. Which pattern blocks did you use to model the second mixed number?



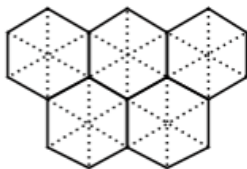
- c. Which pattern blocks did you use to model the sum of the two mixed numbers?



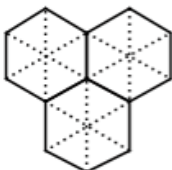
- d. Explain how your visual representation of the sum is equivalent to the numerical representation of the sum.

4. Select the bottom box in the top left corner of page 1.3 to generate the subtraction problem, $4\frac{1}{6} - 2\frac{1}{2}$. Evaluate the difference, and answer the questions below (use colored pencils to record your block patterns).

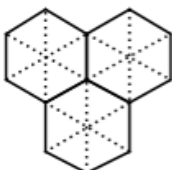
- a. Which pattern blocks did you use to model the first mixed number?



- 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?





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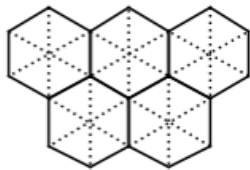
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- d. Explain how your visual representation of the difference is equivalent to the numerical representation of the sum.

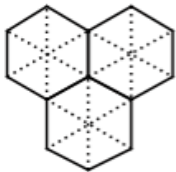
5. Select the **(N)ew** box in the top right corner of page 1.3 to generate a new subtraction problem. Record your problem below. Find the value of your new problem using the pattern blocks on page 1.3, and answer the questions below. Record your calculation sequence and numerical answer for all parts of this problem.

Record your problem:

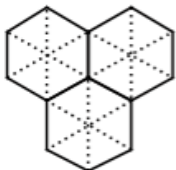
- a. Which pattern blocks did you use to model the first mixed number?



- 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.