Name ..... Date ..... Class .....

Study Guide

Let's Be Rational

Check-Up 1 *for use after Investigation 1*

1. Decide if each sum is closest to 0, $\frac{1}{2}$, or 1. Explain your reasoning.

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

$\frac{2}{3}$ is a little more than $\frac{1}{2}$. If you add $\frac{1}{4}$ to a number that is a little more than $\frac{1}{2}$ you will make a sum close to 1

b. $0.5+\frac{1}{6}=\frac{1}{2}$

$0.5=\frac{1}{2}$

$0.5=\frac{3}{6}$

So $\frac{3}{6}+\frac{1}{6}=\frac{4}{6}$ which is only $\frac{1}{6}$ away from $\frac{1}{2}$

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

$\frac{1}{8}+\frac{6}{8}=\frac{7}{8}$

which is one piece $(\frac{1}{8})$ away from 1 whole.

2. **Multiple Choice** Which sum is closest to 1? Explain your reasoning.

A. $0.5+\frac{3}{4}$

B. $\frac{5}{6}+\frac{1}{4}$

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

$\frac{5}{6}\approx 0.83$

$\frac{1}{4}=0.25$

$0.83+0.25=1.08$

3. At D. J.'s Drink Stand, Erika ordered a cup of fruit punch made using the following recipe.

$\frac{1}{4}$ cup lemonade

$\frac{1}{12}$ cup cranberry juice

$\frac{2}{3}$ ☐ cup orange juice

What fraction of Erika's cup will be orange juice? Write a number sentence to support your answer.

$\frac{3}{12}+\frac{1}{12}+\frac{8}{12}=1$

or

$\frac{12}{12}-\frac{4}{12}=\frac{8}{12}$

Check-Up 1 (continued)

4. Mr. Gomez ordered three pizzas for some members of his cross-country team. The four of them ate the following amounts.

   Scott ate $\frac{2}{3}$ of a pizza.

   Nate ate $\frac{7}{12}$ of a pizza.

   Da-Wei ate $\frac{5}{12}$ of a pizza.

   Mr. Gomez ate $\frac{5}{6}$ of a pizza.

   a. How many pizzas did they eat? Write a number sentence to support your answer.

   $\frac{8}{12} + \frac{7}{12} + \frac{5}{12} + \frac{10}{12} = \frac{30}{12}$ or $2\frac{6}{12}$ pizzas

   b. How many pizzas were left? Write a number sentence to support your answer.

   $3 - 2\frac{6}{12} = \frac{6}{12}$ or $\frac{1}{2}$ a pizza

5. Find each sum or difference. Show all your work.

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

   $\frac{10}{15} + \frac{12}{15} = \frac{22}{15}$ or $1\frac{7}{15}$

   b. $3\frac{2}{3} + 7\frac{3}{8}$

   $3\frac{16}{24} + 7\frac{9}{24} = 10\frac{25}{24}$ or $11\frac{1}{24}$

   c. $\frac{3}{4} - \frac{2}{5}$

   $\frac{15}{20} - \frac{8}{20} = \frac{7}{20}$

   d. $10\frac{2}{3} - 8\frac{9}{12}$

   $10\frac{8}{12} - 8\frac{9}{12} = 9\frac{20}{12} - 8\frac{9}{12} = 1$

Partner Quiz *for use after Investigation 2*

1. Bob is making treat bags for his daughter's birthday party. He decided to use the recipe below for each bag. He needs to make 6 bags so each friend can have one, and he wants to make $\frac{1}{2}$ bag for his two-year-old to have. How much of each ingredient will he need to make the $6\frac{1}{2}$ bags? Write number sentences to support your answer.

$\frac{3}{4} \times 6\frac{1}{2} = 4\frac{7}{8}$ cups

$6\frac{1}{2} \times \frac{1}{3} = 2\frac{1}{6}$ cups

$\frac{1}{5} \times 6\frac{1}{2} = 1\frac{3}{10}$ cups

$\frac{2}{3} \times 6\frac{1}{2} = 4\frac{1}{3}$ cups

Recipe for 1 Bag

- $\frac{1}{3}$ cup of peanuts
- $\frac{3}{4}$ cup of pretzels
- $\frac{1}{5}$ cup of raisins
- $\frac{2}{3}$ cup of popcorn

2. On a particular map of Denmark, 1 inch represents 12 miles.

|——————| = 12 miles

a. What does $2\frac{1}{2}$ inches on the map represent? Write a number sentence and show your work.

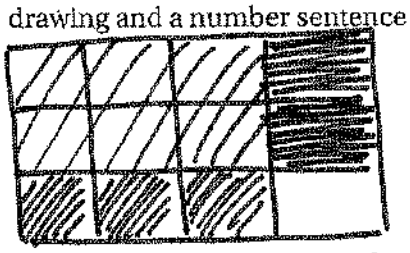
$2\frac{1}{2}$ in. $\times$ 12 miles = 30 miles

b. What does $3\frac{3}{4}$ inches on the map represent? Write a number sentence and show your work.

$3\frac{3}{4}$ inches $\times$ 12 miles $= 36 + 9 = 45$ miles

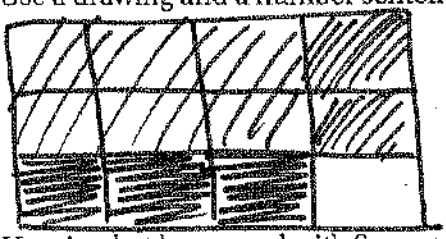
Partner Quiz (continued)

3. a. Caroline had a pan of lasagna $\frac{3}{4}$ full. Some friends visited her and ate $\frac{2}{3}$ of what was in the pan. How much lasagna did her friends eat? Use a drawing and a number sentence to support your answer.



$\frac{2}{3} \times \frac{3}{4} = \frac{6}{12}$ or $\frac{1}{2}$ pan

b. Savannah had a lasagna pan $\frac{2}{3}$ full. Some friends visited her and ate $\frac{3}{4}$ of what was in the pan. How much lasagna did her friends eat? Use a drawing and a number sentence to support your answer.



$\frac{2}{3} \times \frac{3}{4} = \frac{6}{12}$ or $\frac{1}{2}$ pan

c. How is what happened with Savannah's pan of lasagna different from what happened with Caroline's pan of lasagna? How is what happened with Savannah's pan of lasagna the same as what happened with Caroline's pan of lasagna?

They are different because each group started with a different part of the whole pan. The friends ate the same amount of lasagna in both cases.

4. Write a story problem to fit the calculation below. Explain why the calculation matches the story.

$$1\frac{2}{3} \times \frac{1}{4}$$

EXAMPLE:

When I came home there were $1\frac{2}{3}$ pizzas in the refrigerator. I ate $\frac{1}{4}$ of what was left. How much did I eat?

$1\frac{2}{3} \times \frac{1}{4} = 1 \times \frac{1}{4} + \frac{2}{3} \times \frac{1}{4} = \frac{1}{4} + \frac{2}{12} = \frac{5}{12}$ of a pizza

$\frac{5}{3} \times \frac{1}{4} = \frac{5}{12}$ or of a pizza