Lesson 7-12

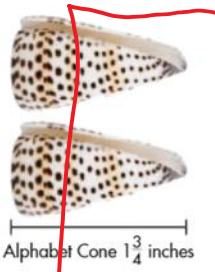
Friday, December 13, 2019 10:52 AM

MB 437

Name

Solve & Share

Annie found three seashells at the beach. How much shorter is the Scotch Bonnet seashell than the combined lengths of the two Alphabet Cone seashells? *Solve this problem any way you choose. Use a diagram to help.*



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

$3\frac{1}{2} = 3\frac{1}{2}$

$3\frac{1\times4}{2\times4} = 3\frac{4}{8}$

$-2\frac{1}{4} = 2\frac{2}{8}$

$1\frac{3}{8}$

$1\frac{3}{8}$ in. difference

Math Practices and Problem Solving

Lesson 7-12

Model with Math

I can ...

apply the math I know to solve problems.

Mathematical Practices MP.4 Also, MP.1, MP.2, MP.3

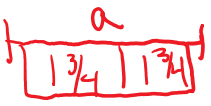
Content Standard 5.NF.A.2

Thinking Habits

Be a good thinker! These questions can help you.

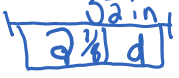
- How can I use math I know to help solve this problem?
- How can I use pictures, objects, or an equation to represent the problem?
- Can I write an equation to show the problem?

Look Back! MP.4 Model with Mathematics What is another way to represent this problem?



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

(equations)



$3\frac{1}{2} - 2\frac{1}{8} = d$

1 equation

$\left(1\frac{3}{4} + 1\frac{3}{4}\right) - 2\frac{1}{8} = d$

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Learn Glossary A-Z

Essential Question

How Can You Represent a Problem with a Bar Diagram?

A

The first step of a recipe is to mix the flour, white sugar, and brown sugar. Will a bowl that holds 4 cups be large enough?

Use a model to represent the problem.

What do I need to do to solve the problem?

I need to find the total amount of the first three ingredients and compare that amount to 4 cups.

Cupcakes

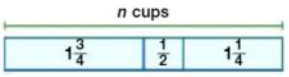
- $1\frac{3}{4}$ cups flour
- $\frac{1}{2}$ cup brown sugar
- $1\frac{1}{4}$ cups white sugar
- $2\frac{1}{2}$ teaspoons baking powder
- $\frac{1}{2}$ teaspoon salt
- $\frac{2}{3}$ cup butter
- 2 eggs
- 1 cup milk

B **How can I model with math?**

I can

- use math I know to help solve this problem.
- use a diagram to represent and solve this problem.
- write an equation involving fractions or mixed numbers.
- decide if my results make sense.

C I will use a bar diagram and an equation to represent the situation.



$n = 1\frac{3}{4} + \frac{1}{2} + 1\frac{1}{4}$

$1\frac{3}{4} + \frac{2}{4} + 1\frac{1}{4} = 2\frac{6}{4}$

I can write this answer as a mixed number. $2\frac{6}{4} = 3\frac{2}{4}$ or $3\frac{1}{2}$

There are $3\frac{1}{2}$ cups of ingredients, and $3\frac{1}{2}$ is less than 4. So, the 4-cup bowl is large enough.

Convince Me! MP.4 Model with Mathematics How many more cups of ingredients could still fit in the bowl? Use a bar diagram and an equation to represent the problem.

4 cups

3 1/2 c. | x

$4 - 3\frac{1}{2} = x$

$3\frac{4}{2} \quad 3\frac{2}{2}$

$-3\frac{1}{2} \quad -3\frac{1}{2}$

$\frac{1}{2}$ cup

Name _____

Guided Practice

MP.4 Model with Math

Phillip wants to run a total of 3 miles each day. Monday morning, he ran $1\frac{7}{8}$ miles. How many more miles does he still need to run?

1. Draw a diagram to represent the problem.

3 mi

1 7/8 m | r

2. Write and solve an equation for this problem. How did you find the solution?

$3 - 1\frac{7}{8} = r$ $r + 1\frac{7}{8} = 3$

$2\frac{8}{8} - 1\frac{7}{8}$ $-1\frac{7}{8}$

$1\frac{1}{8}$

3. How many more miles does Phillip still need to run?

$1\frac{1}{8}$ miles

Complete 7, 8, 9

Independent Practice

MP.4 Model with Math

A landscaper used $2\frac{1}{2}$ tons of sunburst pebbles, $3\frac{1}{4}$ tons of black polished pebbles, and $\frac{5}{8}$ ton of river pebbles. What was the total weight of the pebbles?

4. Draw a diagram and write an equation to represent the problem.

5. Solve the equation. What fraction computations did you do?

6. How many tons of pebbles did the landscaper use?

*For another example, see Set H on page 448.

Math Practices and Problem Solving

Common Core Performance Assessment

Camp Activities

During the 6-hour session at day camp, Roland participated in boating, hiking, and lunch. The rest of the session was free time. How much time did Roland spend on the three activities? How much free time did he have?

DATA

Camp Activities	
Swiming	$\frac{3}{4}$ hour
Boating	$1\frac{1}{2}$ hours
Crafts	$1\frac{3}{4}$ hours
Hiking	$2\frac{1}{2}$ hours
Lunch	$1\frac{1}{4}$ hours

7. **MP.1 Make Sense and Persevere** What do you know and what do you need to find?

You know camp is 6 hours, boating is $1\frac{1}{2}$ hrs hiking is $2\frac{1}{2}$ hrs and lunch is $1\frac{1}{4}$ hrs. How much free time is there?

When you model with math, you use the math you know to solve new problems.

8. **MP.2 Reasoning** Describe the quantities and operations you will use to find how much time Roland spent on the planned activities. Which quantities and operations will you use to find how much free time Roland had?

Add $1\frac{1}{2} + 2\frac{1}{2}$ and $1\frac{1}{4}$. Then subtract the sum from 6 hrs.

9. **MP.4 Model with Math** Draw a diagram and use an equation to help you find how much time Roland spent on the activities. Then draw a diagram and use an equation to help you find how much free time Roland had.

h - hours

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

$1\frac{1}{2} + 2\frac{1}{2} + 1\frac{1}{4} = h$

$1\frac{2}{4} + 2\frac{2}{4} + 1\frac{1}{4} = 4\frac{5}{4}$

$4 + 1\frac{1}{4} = 5\frac{1}{4}$

6 hours

$5\frac{1}{4}$ hrs	f

$6 - 5\frac{1}{4} = f$

$5\frac{4}{4} = 5\frac{4}{4}$

$-5\frac{1}{4} = -5\frac{1}{4}$

$\frac{3}{4}$

The activities take $5\frac{1}{4}$ hrs. Free time is $\frac{3}{4}$ hr.