

NAME: \_\_\_\_\_

## Purpose

To use reasoning to prove that two ratios are equal

## Math Words

**ratio** If there are 3 cats for every 4 dogs,  
the ratio of cats to dogs is 3:4 or  $\frac{3}{4}$ .

Some ways to read the ratio 2:3 or  $\frac{2}{3}$  are:

**for every** 2 for every 3

**to** 2 to 3

**out of** 2 out of 3

**per** 2 per 3

**base ratio** The lowest terms ratio or base ratio for 2:8 is 1:4.

## Starter Problem

Erin made pineapple punch for her math club meeting.  
Her recipe called for a pineapple juice to soda ratio of 2:8.  
She used 5 cups of pineapple juice and 20 cups of soda.  
Is this ratio equal to the ratio in the original recipe?

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## Starter Problem

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## Student Thinking



Leo

In both recipes, the amount of juice compared to the amount of soda is the same, so the ratios are equal. Both are 1 cup of juice for every 4 cups of soda. She just used  $2\frac{1}{2}$  recipes. I drew a diagram to prove it.



1 recipe	2 recipes	$2\frac{1}{2}$ recipes
2:8	4:16	5:20
J S S S S	J S S S S	J S S S S
J S S S S	J S S S S	J S S S S
	J S S S S	J S S S S
	J S S S S	J S S S S
		J S S S S



Veronica

No, the ratios aren't equal. The recipe says there needs to be 6 more cups of soda than juice, but Erin used 15 more cups of soda than juice. That's too much soda.



Recipe:  
8 cups soda  
- 2 cups juice  
6 more cups of soda

Erin used:  
20 cups soda  
- 5 cups juice  
15 more cups of soda

## Things to Remember

- \* \_\_\_\_\_
- \* \_\_\_\_\_



NAME: \_\_\_\_\_

## Our Turn

Circle the correct response. Make a diagram or explain your reasoning.

1. A recipe for snack mix calls for a raisins to peanuts ratio of 4:6. If there are 6 cups of raisins and 9 cups of peanuts, is this ratio equal to the ratio in the recipe?

Equal

Not equal

2. The number of sunny days compared to cloudy days at the beach during the winter was 3:2. At that rate, Jack predicted there would be 9 cloudy days and 6 sunny days during his winter break. Are the ratios equal?

Equal

Not equal

3. Olga's cat, Tiger, eats 7 cans of cat food on average every 2 weeks. Since cat food is on sale, she bought 28 cans. She expects it will last about 2 months. Is her prediction reasonable based on equal ratios?

Yes

No

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## My Turn

Circle the correct response. Make a diagram or explain your reasoning.

1. The cafeteria manager knows that students usually choose cheese sandwiches and hamburgers in a ratio of 2:5. If there are 12 cheese sandwiches served and 30 hamburgers, is this ratio equal to the ratio from average days?

Equal

Not equal

2. In January Mr. Ali sold cars and trucks in a ratio of 3:2. In February he sold 15 trucks and 10 cars. Are the ratios equal?

Equal

Not equal

3. The Jensen family drinks about 10 gallons of milk in 8 weeks. Carl said they will probably drink about 15 gallons in 12 weeks. Is his prediction reasonable?

Yes

No

# Are the Ratios Equal?

NAME: \_\_\_\_\_

## Multiple Choice Mini Lesson

Fill in the circle next to the answer you choose.

1. A recipe calls for 12 tablespoons of chocolate mix for 1 quart (32 ounces) of milk. Will a drink taste the same if 3 tablespoons of mix are put with 8 ounces of milk?

☐ yes      ☐ no      ☐ not enough information

2. Kate sells diet sodas and regular sodas in a ratio of 9:3. Which ratio is equal to that ratio?

☐ 1:3      ☐ 6:3      ☐ 18:6      ☐ not given



# Are the Ratios Equal?

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**Writing Task Mini Lesson**

Explain how you know that selling 10 subscriptions in 8 days is the same ratio as selling 25 subscriptions in 20 days. You may make a drawing to help you explain.

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**Writing Task Mini Lesson**

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