

Please get a clicker and also get your notebook ready.
Let's talk through the Skills You'll Need topics first.

5-2

Fractions With Like Denominators

Check Skills You'll Need

1. Vocabulary Review

How can you tell when a fraction is in *simplest form*?

Write each fraction in simplest form.

2. $\frac{10}{40}$ 3. $\frac{8}{24}$

4. $\frac{20}{24}$ 5. $\frac{12}{28}$



What You'll Learn

To add and subtract fractions with like denominators

Why Learn This?

At a bake sale, $\frac{4}{12}$ of a cherry pie and $\frac{7}{12}$ of an apple pie are sold. You can find the total amount of pie sold by adding fractions.

To add fractions with like denominators, you add the numerators and do not change the denominators.



Vocabulary Tip

Like means "the same."

KEY CONCEPTS Adding With Like Denominators

To add fractions with like denominators, add the numerators and keep the same denominator.

Arithmetic

$$\frac{2}{7} + \frac{3}{7} = \frac{2+3}{7} = \frac{5}{7}$$

Algebra

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

EXAMPLE Adding With Like Denominators

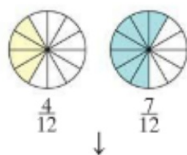
1 Find $\frac{4}{12} + \frac{7}{12}$.

$$\frac{4}{12} + \frac{7}{12} = \frac{4+7}{12}$$

← The fractions have like denominators. Add the numerators. The denominator stays the same.

$$= \frac{11}{12}$$

← Simplify the numerator.





Add: $1/6 + 1/6 =$ _____
Simplify your answer if possible

A $2/12$

B $1/6$

C $2/6$

D $1/3$



Add: $10/21 + 4/21 =$ _____.
Simplify if possible.

A $14/21$

B $2/3$

C $2/7$

D $14/42$

If the sum of fractions results in an improper fraction, rename the improper fraction as a mixed number.

EXAMPLE Sums Greater Than 1

2 Find $\frac{7}{9} + \frac{5}{9}$.

$$\frac{7}{9} + \frac{5}{9} = \frac{7+5}{9} \quad \leftarrow \text{Add the numerators. The denominator remains the same.}$$

$$= \frac{12}{9} \quad \leftarrow \text{Simplify the numerator.}$$

$$= 1\frac{3}{9} \quad \leftarrow \text{Write as a mixed number.}$$

$$= 1\frac{1}{3} \quad \leftarrow \text{Divide the numerator and denominator by the GCF, 3.}$$



Find the sum of $11/20$ and $13/20$.

A $1\frac{1}{5}$

B $24/40$

C $1\frac{4}{20}$

D $24/20$

To subtract fractions with like denominators, subtract the numerators and keep the same denominator. Write the answer in simplest form.

EXAMPLE Subtracting With Like Denominators



- 3 **Circus** A circus has ten seating sections. Eight sections are filled for the first show. Six sections are filled for the second show. How much more of the entire seating area is filled for the first show?

Eight sections out of ten means $\frac{8}{10}$. Six out of ten means $\frac{6}{10}$.

The difference is $\frac{8}{10} - \frac{6}{10}$.

$$\frac{8}{10} - \frac{6}{10} = \frac{8-6}{10} \quad \leftarrow \text{Subtract the numerators. The denominator remains the same.}$$

$$= \frac{2}{10} \quad \leftarrow \text{Simplify the numerator.}$$

$$= \frac{1}{5} \quad \leftarrow \text{Write the fraction in simplest form.}$$

In the circus, $\frac{1}{5}$ more of the seating area is full for the first show.



A board is $11/12$ foot long. You need $7/12$ foot of board for a brace. How much is left after you cut off the piece you need?

A $5/12$ foot

B $1/2$ foot

C $1 \frac{1}{2}$ foot

D $1/3$ foot

Extra practice problems.

Find each sum. You may find a model helpful.

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

6. $\frac{2}{5} + \frac{3}{5}$

7. $\frac{2}{9} + \frac{4}{9}$

8. $\frac{1}{6} + \frac{3}{6}$

9. $\frac{2}{3} + \frac{2}{3}$

10. $\frac{9}{10} + \frac{7}{10}$

11. $\frac{7}{12} + \frac{6}{12}$

12. $\frac{4}{5} + \frac{3}{5}$

Extra practice problems.

Find each difference.

13. $\frac{17}{18} - \frac{5}{18}$

14. $\frac{15}{20} - \frac{3}{20}$

15. $\frac{4}{5} - \frac{3}{5}$

16. $\frac{6}{7} - \frac{3}{7}$

17. $\frac{5}{9} - \frac{2}{9}$

18. $\frac{9}{16} - \frac{3}{16}$

19. $\frac{8}{12} - \frac{5}{12}$

20. $\frac{17}{24} - \frac{7}{24}$

21. $\frac{3}{5} - \frac{1}{5}$



You can power down your clickers and put them away. You have an assignment worksheet.

Name _____ Class _____ Date _____

Practice 5-2

Fractions With Like Denominators

Write each sum or difference in simplest form.

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

2. $\frac{7}{10} - \frac{4}{10}$

3. $\frac{5}{88} - \frac{3}{88}$

4. $\frac{1}{88} + \frac{5}{88}$

5. $\frac{7}{88} + \frac{2}{88}$

6. $\frac{2}{10} + \frac{6}{10}$

7. What is the total amount of sugar in the recipe at the right?

8. Martha decides to double the recipe. How much brown sugar will she use?

Estimate each sum or difference.

9. $\frac{3}{8} + \frac{2}{8} - \frac{4}{8}$

10. $\frac{1}{10} + \frac{2}{10} + \frac{4}{10}$

11. $\frac{9}{20} - (\frac{2}{20} + \frac{4}{20})$

12. $\frac{6}{9} + \frac{2}{9} - \frac{1}{9}$

Martha's Cookie Recipe

- 1 cup shortening
- 2 eggs
- $\frac{1}{4}$ cup white sugar
- $\frac{1}{4}$ cup brown sugar
- $1\frac{1}{2}$ cup flour
- 1 teaspoon vanilla

Solve.

13. At the tea shop, $\frac{5}{13}$ of the customers purchased green tea, $\frac{2}{13}$ of the customers purchased jasmine tea, and $\frac{5}{13}$ of the customers purchased herbal tea. What portion of the customers purchased another type of tea?

14. A piece of fabric is $\frac{7}{9}$ yard long. A piece of ribbon is $\frac{2}{9}$ yard long. How many more yards of ribbon do you need to have equal lengths of fabric and ribbon?

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