

## Summer Math Packet

Please work on this over the summer. Remember to show **ALL** of your work on the paper.

Please bring this to school with you on the first day. This will be handed to your 6<sup>th</sup> grade math teacher.

Enjoy and have a wonderful summer!

# 5-2 Study Guide and Intervention

## Adding and Subtracting Fractions

*Like fractions* are fractions that have the same denominator. To add or subtract like fractions, add or subtract the numerators and write the result over the denominator.

Simplify if necessary.

To add or subtract *unlike fractions*, rename the fractions with a least common denominator. Then add or subtract as with like fractions.

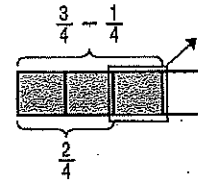
**Example 1** Subtract  $\frac{3}{4} - \frac{1}{4}$ . Write in simplest form.

$$\begin{aligned} \frac{3}{4} - \frac{1}{4} &= \frac{3-1}{4} \\ &= \frac{2}{4} \\ &= \frac{1}{2} \end{aligned}$$

Subtract the numerators.

Write the difference over the denominator.

Simplify.



**Example 2** Add  $\frac{2}{3} + \frac{1}{12}$ . Write in simplest form.

The least common denominator of 3 and 12 is 12.

$$\frac{2}{3} = \frac{2 \times 4}{3 \times 4} = \frac{8}{12}$$

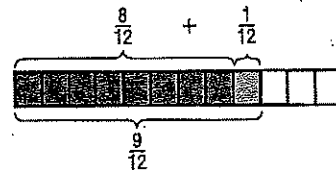
Rename  $\frac{2}{3}$  using the LCD.

$$\frac{2}{3} \rightarrow \frac{8}{12}$$

$$+ \frac{1}{12} \rightarrow + \frac{1}{12}$$

$$\frac{9}{12} \text{ or } \frac{3}{4}$$

Add the numerators and simplify.



### Exercises

Add or subtract. Write in simplest form.

1.  $\frac{5}{8} + \frac{1}{8}$

2.  $\frac{7}{9} - \frac{2}{9}$

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

4.  $\frac{7}{8} - \frac{5}{6}$

5.  $\frac{5}{9} + \frac{5}{6}$

6.  $\frac{3}{8} - \frac{1}{12}$

7.  $\frac{3}{10} + \frac{7}{12}$

8.  $\frac{2}{5} - \frac{1}{3}$

9.  $\frac{7}{15} + \frac{5}{6}$

10.  $\frac{7}{9} - \frac{1}{2}$

**5-3****Study Guide and Intervention****Adding and Subtracting Mixed Numbers**

To add or subtract mixed numbers:

1. Add or subtract the fractions. Rename using the LCD if necessary.
2. Add or subtract the whole numbers.
3. Simplify if necessary.

**Example 1** Find  $14\frac{1}{2} + 18\frac{2}{3}$ .

$$\begin{array}{r} 14\frac{1}{2} \rightarrow 14\frac{3}{6} \\ + 18\frac{2}{3} \rightarrow + 18\frac{4}{6} \\ \hline 32\frac{7}{6} \text{ or } 33\frac{1}{6} \end{array}$$

Rename the fractions.  
Add the whole numbers and add the fractions.  
Simplify.

**Example 2** Find  $21 - 12\frac{5}{8}$ .

$$\begin{array}{r} 21 \rightarrow 20\frac{8}{8} \\ - 12\frac{5}{8} \rightarrow - 12\frac{5}{8} \\ \hline 8\frac{3}{8} \end{array}$$

Rename 21 as  $20\frac{8}{8}$ .  
First subtract the whole numbers and then the fractions.

**Exercises**

Add or subtract. Write in simplest form.

1.  $7\frac{3}{4} + 2\frac{3}{4}$

2.  $14\frac{2}{9} - 6\frac{1}{9}$

3.  $9\frac{1}{5} - 4\frac{3}{4}$

4.  $7\frac{1}{8} + 5\frac{3}{8}$

5.  $7\frac{3}{4} + 2\frac{2}{3}$

6.  $5\frac{1}{2} - 5\frac{1}{3}$

7.  $5\frac{1}{2} - 3\frac{1}{4}$

8.  $6\frac{1}{3} + 2\frac{1}{6}$

9.  $9 - 3\frac{2}{5}$

10.  $2\frac{2}{3} + 7\frac{1}{2}$

11.  $6\frac{1}{2} - 6\frac{1}{3}$

12.  $18\frac{1}{2} + 5\frac{5}{8}$

# 5-5 Study Guide and Intervention

## Multiplying Fractions and Mixed Numbers

To multiply fractions, multiply the numerators and multiply the denominators.

$$\frac{5}{6} \times \frac{3}{5} = \frac{5 \times 3}{6 \times 5} = \frac{15}{30} = \frac{1}{2}$$

To multiply mixed numbers, rename each mixed number as a fraction. Then multiply the fractions.

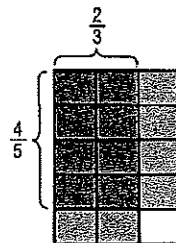
$$2\frac{2}{3} \times 1\frac{1}{4} = \frac{8}{3} \times \frac{5}{4} = \frac{40}{12} = 3\frac{1}{3}$$

**Example 1** Find  $\frac{2}{3} \times \frac{4}{5}$ . Write in simplest form.

$$\begin{aligned} \frac{2}{3} \times \frac{4}{5} &= \frac{2 \times 4}{3 \times 5} && \leftarrow \text{Multiply the numerators.} \\ &= \frac{8}{15} && \leftarrow \text{Multiply the denominators.} \\ &= \frac{8}{15} && \text{Simplify.} \end{aligned}$$

**Example 2** Find  $\frac{1}{3} \times 2\frac{1}{2}$ . Write in simplest form.

$$\begin{aligned} \frac{1}{3} \times 2\frac{1}{2} &= \frac{1}{3} \times \frac{5}{2} && \text{Rename } 2\frac{1}{2} \text{ as an improper fraction, } \frac{5}{2}. \\ &= \frac{1 \times 5}{3 \times 2} && \text{Multiply.} \\ &= \frac{5}{6} && \text{Simplify.} \end{aligned}$$



### Exercises

Multiply. Write in simplest form.

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

2.  $\frac{1}{2} \times \frac{7}{8}$

3.  $\frac{1}{3} \times \frac{3}{5}$

4.  $\frac{5}{9} \times 4$

5.  $1\frac{2}{3} \times \frac{3}{5}$

6.  $3\frac{3}{4} \times 1\frac{1}{6}$

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

8.  $3\frac{1}{3} \times 2\frac{1}{2}$

9.  $4\frac{1}{5} \times \frac{1}{7}$

10.  $\frac{7}{5} \times 8$

11.  $2\frac{1}{3} \times \frac{4}{6}$

12.  $\frac{1}{8} \times 2\frac{3}{4}$

**5-7 Study Guide and Intervention*****Dividing Fractions and Mixed Numbers***

To divide by a fraction, multiply by its multiplicative inverse or reciprocal. To divide by a mixed number, rename the mixed number as an improper fraction.

**Example 1** Find  $3\frac{1}{3} \div \frac{2}{9}$ . Write in simplest form.

$$\begin{aligned} 3\frac{1}{3} \div \frac{2}{9} &= \frac{10}{3} \div \frac{2}{9} \\ &= \frac{10}{3} \cdot \frac{9}{2} \\ &= \frac{10}{\cancel{3}^1} \cdot \frac{\cancel{9}^3}{2} \\ &= 15 \end{aligned}$$

Rename  $3\frac{1}{3}$  as an improper fraction.

Multiply by the reciprocal of  $\frac{2}{9}$ , which is  $\frac{9}{2}$ .

Divide out common factors.

Multiply.

**Exercises**

Divide. Write in simplest form.

1.  $\frac{2}{3} \div \frac{1}{4}$

2.  $\frac{2}{5} \div \frac{5}{6}$

3.  $\frac{1}{2} \div \frac{1}{5}$

4.  $5 \div \frac{1}{2}$

5.  $\frac{5}{8} \div 10$

6.  $7\frac{1}{3} \div 2$

7.  $\frac{5}{6} \div 3\frac{1}{2}$

8.  $36 \div 1\frac{1}{2}$

9.  $2\frac{1}{2} \div 10$

10.  $5\frac{2}{5} \div 1\frac{4}{5}$

11.  $6\frac{2}{3} \div 3\frac{1}{9}$

12.  $4\frac{1}{4} \div \frac{3}{8}$

13.  $4\frac{6}{7} \div 2\frac{3}{7}$

14.  $12 \div 2\frac{1}{2}$

15.  $4\frac{1}{6} \div 3\frac{1}{6}$

## Problems with Fractions

1. If  $1\frac{1}{4}$  pounds of bananas sell for 80¢ and  $1\frac{1}{3}$  pounds of apples sell for 90¢, which fruit is cheaper?
2. A cake recipe calls for  $\frac{2}{3}$  teaspoons of salt,  $1\frac{1}{2}$  teaspoons baking powder, 1 teaspoon baking soda and  $\frac{1}{2}$  teaspoon cinnamon. How many total teaspoons of dry ingredients are used?
3. A baseball team played 35 games and won  $\frac{4}{7}$  of them.  
How many games were won?  
How many games were lost?
4. During 4 days, the price of the stock of PEV Corporation went up  $\frac{1}{4}$  of a point, down  $\frac{1}{3}$  of a point, down  $\frac{3}{4}$  of a point and up  $\frac{7}{10}$  of a point. What was the net change?
5. Janie wants to make raisin cookies. She needs  $8\frac{1}{2}$  cups of raisins for the cookies. A 15-ounce box of raisins contains  $2\frac{3}{4}$  cups. How many boxes must Janie buy to make her cookies?
6. A one-half gallon carton of milk costs \$1.89. A one-gallon carton of milk costs \$2.99. How much money would you save if you bought a one-gallon carton instead of 2 one-half gallon cartons?

# Changing Fractions to Decimals

$$\frac{7}{20} \rightarrow 20 \overline{) 7.00} \rightarrow \frac{7}{20} = 0.35$$

$$\begin{array}{r} .35 \\ 20 \overline{) 7.00} \\ \underline{6.0} \\ 1.00 \\ \underline{1.00} \\ 0 \end{array}$$

terminating

$$\frac{5}{12} \rightarrow 12 \overline{) 5.00000} \rightarrow \frac{5}{12} = 0.41\overline{6}$$

$$\begin{array}{r} .41666 \\ 12 \overline{) 5.00000} \\ \underline{4.8} \\ 20 \\ \underline{12} \\ 80 \\ \underline{72} \\ 80 \\ \underline{72} \\ 80 \end{array}$$

repeating

1.  $\frac{3}{5} =$

8.  $\frac{1}{3} =$

2.  $\frac{11}{25} =$

9.  $\frac{5}{33} =$

3.  $\frac{7}{15} =$

10.  $2\frac{5}{16} =$

4.  $2\frac{1}{9} =$

11.  $\frac{25}{37} =$

5.  $\frac{23}{33} =$

12.  $3\frac{13}{15} =$

6.  $1\frac{5}{16} =$

13.  $\frac{17}{22} =$

7.  $\frac{12}{25} =$

14.  $3\frac{11}{12} =$

# Adding and Subtracting Decimals

$$\begin{array}{r} 13.6 + 7.12 = \\ \quad 13.6 \\ \quad + 7.12 \\ \hline \quad 20.72 \end{array}$$

$$\begin{array}{r} 12 - 3.78 = \\ \quad 12 \\ \quad - 3.78 \\ \hline \quad 8.22 \end{array}$$

1.  $3.5 + 8.4 =$

11.  $17.6 - 9.3 =$

2.  $43.57 + 104.6 =$

12.  $32.3 - 12.72 =$

3.  $15.36 + 29.23 + 7.2 =$

13.  $23.96 - 19.931 =$

4.  $2.304 + 6.18 + 9.2 =$

14.  $\$29.98 - \$16.09 =$

5.  $\$12.91 + \$6.99 =$

15.  $63.36 - 0.007 =$

6.  $0.08 + 19 =$

16.  $16.22 - 0.039 =$

7.  $22.63 + 1.694 =$

17.  $44.44 - 16.1 =$

8.  $362.1 + 8.888 + 0.016 =$

18.  $\$75.02 - \$3.99 =$

9.  $1392.16 + 16.16 =$

19.  $575.021 - 65.98 =$

10.  $83.196 + 0.0017 =$

20.  $394.6 - 27.88 - 0.0933 =$



# Multiplying Decimals

The number of decimal places in a product equals the sum of decimal places in the factors.

$$\begin{array}{r} (0.7) (0.04) = 0.028 \\ 1 + 2 = 3 \\ \text{place places places} \end{array}$$

1.  $(0.003) (6) =$

10.  $(0.05) (0.16) (0.001) =$

2.  $(0.051) (0.003) =$

11.  $(8) (0.217) (0.01) =$

3.  $(260) (0.01) =$

12.  $(18) (0.08) =$

4.  $(9.6) (5) =$

13.  $(16.01) (0.5) (0.31) =$

5.  $(7) (3.42) =$

14.  $(1.06) (0.005) =$

6.  $(5.29) (11.3) =$

15.  $(4.802) (11.11) =$

7.  $(0.017) (6.2) =$

16.  $(10.25) (0.331) =$

8.  $(0.3) (0.03) (0.003) =$

17.  $(5) (1.102) =$

9.  $(1.5) (0.096) (4.3) =$

18.  $(12.8) (0.05) (3.09) =$

# Get to the Point

For each multiplication problem, locate the decimal point in the product.  
Insert zeros if needed.

$$\begin{array}{r} 1. \quad 2.2 \\ \times 0.011 \\ \hline 242 \end{array}$$

$$\begin{array}{r} 6. \quad 55 \\ \times 0.033 \\ \hline 1815 \end{array}$$

$$\begin{array}{r} 11. \quad 0.005 \\ \times 0.011 \\ \hline 55 \end{array}$$

$$\begin{array}{r} 2. \quad 12.8 \\ \times 0.12 \\ \hline 1536 \end{array}$$

$$\begin{array}{r} 7. \quad 6.9 \\ \times 11 \\ \hline 759 \end{array}$$

$$\begin{array}{r} 12. \quad 66.2 \\ \times 1.1 \\ \hline 7282 \end{array}$$

$$\begin{array}{r} 3. \quad 1.8 \\ \times 6.03 \\ \hline 10854 \end{array}$$

$$\begin{array}{r} 8. \quad 6.7 \\ \times 0.801 \\ \hline 5.3667 \end{array}$$

$$\begin{array}{r} 13. \quad 0.84 \\ \times 0.07 \\ \hline 588 \end{array}$$

$$\begin{array}{r} 4. \quad 34.1 \\ \times 1.4 \\ \hline 47.74 \end{array}$$

$$\begin{array}{r} 9. \quad 4.04 \\ \times 4.04 \\ \hline 163216 \end{array}$$

$$\begin{array}{r} 14. \quad 8.2 \\ \times 0.1 \\ \hline 82 \end{array}$$

$$\begin{array}{r} 5. \quad 7.21 \\ \times 22.2 \\ \hline 160062 \end{array}$$

$$\begin{array}{r} 10. \quad 32.1 \\ \times 2.02 \\ \hline 64842 \end{array}$$

$$\begin{array}{r} 15. \quad 0.6 \\ \times 1.7 \\ \hline 102 \end{array}$$

$$16. (5.7)(0.2)(0.07) = 798$$

$$17. (9.8)(2.8)(1.8) = 49392$$

$$18. (10.6)(4.3)(0.8) = 36464$$

$$19. (0.13)(8.5)(0.5) = 5525$$

$$20. (6.7)(1.2)(0.03) = 2412$$

HINT:

The sum of the number of all decimal places in your products equals 64.

# Dividing Decimals

**HINT:**

Move the decimal points the number of places needed to make the divisor a whole number.

$$0.03652 \div .88 = \begin{array}{r} .0415 \\ .88 \overline{) 0.036520} \\ \underline{352} \\ 132 \\ \underline{88} \\ 440 \\ \underline{440} \\ 0 \end{array}$$

1.  $0.128 \div 0.8 =$

8.  $3.906 \div 1.2 =$

2.  $2.45 \div 3.5 =$

9.  $6.56 \div 0.16 =$

3.  $0.5773 \div 5.02 =$

10.  $0.0135 \div 4.5 =$

4.  $39.78 \div 0.195 =$

11.  $0.0483 \div 0.21 =$

5.  $4.2016 \div 5.2 =$

12.  $0.5418 \div 0.3 =$

6.  $1.45 \div 0.08 =$

13.  $16.83 \div 0.11 =$

7.  $0.1716 \div 5.2 =$

14.  $0.1926 \div 32.1 =$

## Problems with Decimals

1. Jim's gas credit card bill was \$80.97 for June, \$41.35 for July and \$65.08 for August. What were his total charges for the summer?
2. One cup of hot chocolate can be made with .18 ounces of hot chocolate mix. How many cups can be made from a 6.48 ounce canister of mix?
3. Karl's car payments are \$215.37 per month for the next three years. What will be the total amount he will pay for his car?
4. The dress Sally wants cost \$85.15. If the price was reduced by \$12.78, how much will she pay?
5. Melissa went to the mall and noticed that the price of a coat she wanted was cut in half! The original price was \$58.22. What is the sales price?
6. Tyler decided that he wanted a dog. He went to the pet store and bought one for \$42.95. Tyler also bought three bags of food for \$12.55 a bag. How much did Tyler spend altogether?
7. Christopher decided to make his grandmother a birdhouse instead of buying her one. The materials for the birdhouse totaled \$21.99, the cost of a new birdhouse is \$37.23. How much did Christopher save?
8. Jim thinks that snow skiing looks like lots of fun. He decided he wants to try it. First he needs equipment. He bought a pair of skis for \$129.78, a pair of boots for \$62.22, poles for \$12.95, a hat for \$2.50, a coat for \$49.95, ski pants for \$27.50 and gloves for \$11.25. How much did Jim spend altogether?