

# Grade 6 going into 7 Math Packet.

## Fractions, Decimals, and Percents

### Adding and Subtracting Fractions

When you add or subtract fractions, you always have to have fractions with *common denominators*. (The denominator is the the number below the fraction bar.) To find a denominator both fractions can share, find the denominators' least common multiple.

Find the least common denominator (or least common multiple) for each pair of fractions.

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

2.  $\frac{1}{9}$  and  $\frac{1}{3}$

3.  $\frac{5}{6}$  and  $\frac{4}{9}$

Multiples

3	4
3	4
6	8
9	12
12	16

12

Add or subtract. Reduce to lowest terms.

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

$+\frac{2}{5}$

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

$+\frac{3}{4}$

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

$+\frac{7}{10}$

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

$-\frac{1}{6}$

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

$-\frac{1}{6}$

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

$-\frac{2}{9}$

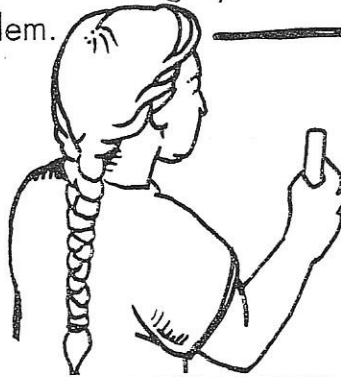
10. Terry is building a bookshelf. She needs one long board she can cut into two pieces. She needs one piece  $\frac{3}{4}$  yd. long and another piece  $\frac{1}{6}$  yd. long. What length board does she need? \_\_\_\_\_

## Dividing Fractions

Multiplying and dividing fractions are almost the same. You have to remember only one more step when dividing fractions. Always flip the second number, the number you are dividing by. This changes the division problem to a multiplication problem.

$$\frac{6}{7} \div \frac{15}{21}$$

$$\frac{\cancel{2}}{\cancel{7}_1} \times \frac{\overset{3}{\cancel{21}}}{\cancel{15}_5} = \frac{6}{5} = 1\frac{1}{5}$$



Flip  
CANCEL  
Multiply

1. Theo, Tyrone, and Terese sold candy bars to earn some extra money. They decided to divide their earnings evenly. Altogether they earned \$24. Describe how you can use division to determine how much money each person earned.

2. Describe another method to solve the same problem. This time use a fraction and multiplication.

Solve the following problems:

3.  $\frac{2}{3} \div \frac{7}{12} =$

4.  $\frac{4}{7} \div \frac{12}{17} =$

5.  $\frac{10}{21} \div \frac{5}{14} =$

6.  $\frac{6}{7} \div \frac{2}{35} =$

7.  $\frac{11}{32} \div \frac{7}{24} =$

8.  $\frac{1}{2} \div \frac{5}{7} =$

9.  $\frac{18}{56} \div \frac{27}{32} =$

10.  $\frac{15}{42} \div \frac{25}{36} =$

11.  $\frac{32}{51} \div \frac{17}{21} =$

# Working with Mixed Numbers

Subtraction:

$$6\frac{1}{4} = 6\frac{3}{12} = \overset{5}{\cancel{6}}\frac{18}{12}$$

$$\begin{array}{r} -2\frac{2}{3} = 2\frac{8}{12} = 2\frac{8}{12} \\ \hline 3\frac{10}{12} = 3\frac{5}{6} \end{array}$$

Think: When subtracting the fractional part, I can't subtract 8 from 3. I must borrow from the 6. One whole is the same as  $\frac{12}{12}$ .



Multiplication:

$$4\frac{1}{2} \times 5 = \frac{9}{2} \times \frac{5}{1} = \frac{45}{2} = 22\frac{1}{2}$$

Solve the following problems:

$$\begin{array}{r} 1. \quad 3\frac{1}{2} \\ + 5\frac{1}{3} \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 5\frac{5}{6} \\ - 2\frac{1}{8} \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 12\frac{2}{3} \\ + 7\frac{3}{5} \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 19\frac{2}{12} \\ - 9\frac{2}{3} \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 40\frac{11}{12} \\ + 22\frac{3}{4} \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 26\frac{14}{25} \\ - 21\frac{3}{5} \\ \hline \end{array}$$

$$7. \quad 4\frac{2}{7} \times 6\frac{1}{5} =$$

$$8. \quad 3\frac{5}{6} \times 4\frac{1}{2} =$$

$$9. \quad 10\frac{2}{7} \times 14 =$$

$$10. \quad 24 \div 6\frac{3}{4} =$$

$$11. \quad 6\frac{1}{8} \div 2\frac{1}{12} =$$

$$12. \quad 12\frac{5}{9} \div 6\frac{1}{3} =$$

# Multiplying and Dividing Decimals

1. Multiply as if you were multiplying whole numbers.
2. Add the number of digits after the decimal point for each number being multiplied.
3. Place the decimal point so that the answer has the number of digits after the decimal point found in step 2.

$$\begin{array}{r}
 25.6 \quad 1 \text{ decimal place} \\
 \times 1.32 \quad 2 \text{ decimal places} \\
 \hline
 512 \quad 3 \text{ decimal places} \\
 7680 \\
 \hline
 25600 \\
 \hline
 33.792
 \end{array}$$

1. Move the decimal in the divisor to make a whole number.
2. Move the same number of places in the dividend and carry the decimal point up to the line.
3. Divide as usual.

$$\begin{array}{r}
 0.455 \\
 3.2 \overline{) 1.4560} \\
 \underline{128} \phantom{0} \\
 176 \phantom{0} \\
 \underline{160} \phantom{0} \\
 160 \\
 \underline{160} \\
 0
 \end{array}$$

Solve the following problems:

1. 
$$\begin{array}{r}
 2.04 \\
 \times 5.8 \\
 \hline
 \end{array}$$

2. 
$$\begin{array}{r}
 61.9 \\
 \times 0.03 \\
 \hline
 \end{array}$$

3. 
$$\begin{array}{r}
 0.14 \\
 \times 0.7 \\
 \hline
 \end{array}$$

4. 
$$\begin{array}{r}
 9.007 \\
 \times 8.12 \\
 \hline
 \end{array}$$

5. 
$$\begin{array}{r}
 81.25 \\
 \times 12.6 \\
 \hline
 \end{array}$$

6. 
$$6.4 \overline{) 0.256}$$

7. 
$$0.15 \overline{) 0.471}$$

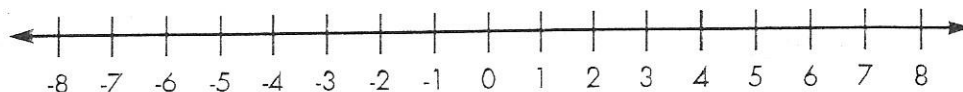
8. 
$$2.9 \overline{) 226.2}$$

9. 
$$19.1 \overline{) 108.87}$$



## ***What Are Integers?***

Integers are the opposites of counting numbers. They are found on the number line on the right side of zero. As you move to the left on the number line, the numbers get smaller.



Absolute value is the value of a distance on the number line. The distance from -8 to -2 is 6. Even though the distance describes an area on the negative side of the number line, it is still positive.

$$|-6| = 6$$

The absolute value of -6 is 6.

The absolute value of any positive or negative number is positive.

Fill in the blanks with  $<$ ,  $>$ , or  $=$ .

1.  $-8$  \_\_\_\_  $6$

2.  $10$  \_\_\_\_  $4$

3.  $0$  \_\_\_\_  $-2$

4.  $-9$  \_\_\_\_  $-7$

5.  $9$  \_\_\_\_  $-9$

6.  $-1$  \_\_\_\_  $-2$

7.  $|5|$  \_\_\_\_  $5$

8.  $|-5|$  \_\_\_\_  $-5$

9.  $|-5|$  \_\_\_\_  $5$

10.  $|-8|$  \_\_\_\_  $10$

11.  $|9|$  \_\_\_\_  $-2$

12.  $|-3|$  \_\_\_\_  $|-6|$

13. The distance on the number line from 1 to 7 is \_\_\_\_ .

14. The distance on the number line from -1 to -7 is \_\_\_\_ .

15. The distance on the number line from 1 to -7 is \_\_\_\_ .

## Mixed Review

1.  $-6\frac{7}{8} + 12\frac{1}{6} =$

2.  $-8\frac{2}{3} \div -3\frac{1}{6} =$

3.  $3.14 - 6.9 =$

4.  $5.4 \overline{)6.75}$

5.  $\begin{array}{r} -8.03 \\ \times 3.7 \\ \hline \end{array}$

6. 53% of \$137.54 =

7.  $6 + -2 \mid 3 + -12 \mid =$

8.  $6.75 + 84 \div 2^2 - 15 =$

9.  $16\frac{2}{3} + 18 \div 3\frac{1}{3} - 10 =$

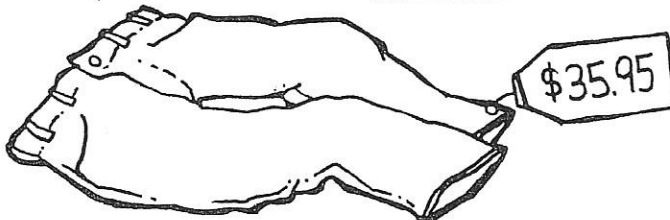
10.  $4.75 (15 - 3^3) + 2 \cdot -16 =$

11. Jones and Co. stock fell from  $84\frac{3}{8}$  to  $62\frac{1}{4}$ . How many points did the stock fall?

\_\_\_\_\_

12. America's Best is having a 35% off sale on their jeans. The jeans are regularly priced at \$35.95. What is the sale price?

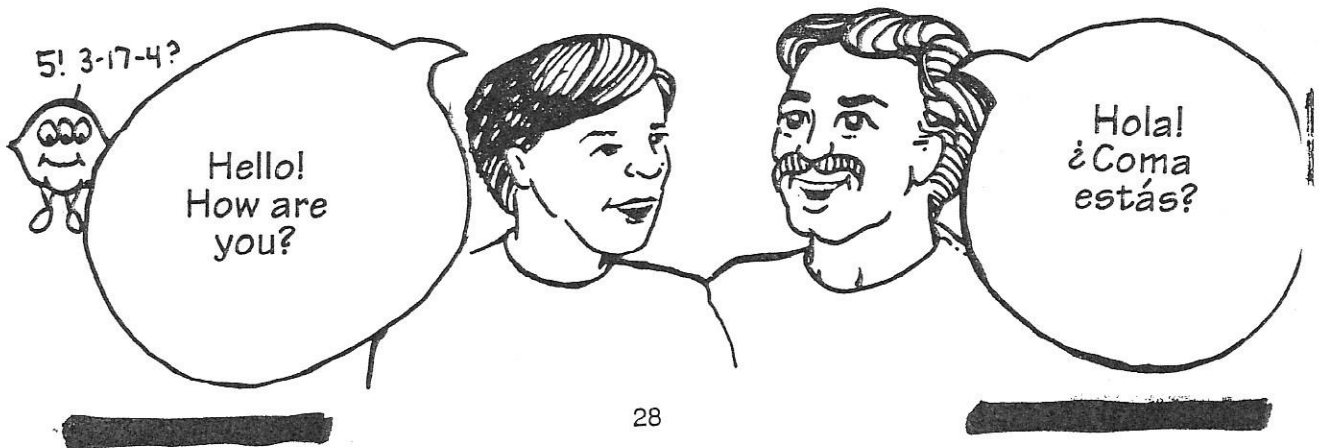
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# Number Statements

Mathematics is like another language. The language of mathematics is symbols. Match the symbols that represent each of the following words. Some symbols will be used more than once.

- |       |                   |      |
|-------|-------------------|------|
| _____ | 1. difference     | a. + |
| _____ | 2. product        | b. - |
| _____ | 3. percent        | c. x |
| _____ | 4. sum            | d. ÷ |
| _____ | 5. quotient       | e. % |
| _____ | 6. more than      | f. = |
| _____ | 7. less than      |      |
| _____ | 8. is the same as |      |
| _____ | 9. increase       |      |
| _____ | 10. decrease      |      |



## Solving Equations—Part 1

Variables are used in equations to represent unknown quantities. Equations are solved to determine the value of the unknown quantity. Equations are like balance scales. To keep the two sides equal, you have to do the same to both sides. If you take some away from one side without taking the same amount from the other side, the quantities would no longer be equal.

$$\begin{aligned} s + 36 &= 127 \\ s + 36 - 36 &= 127 - 36 \\ s &= 91 \end{aligned}$$

Solve the equations to find the value of each variable.

$$\begin{array}{ll} 1. & x + 17 = 41 \\ & x + 17 - \underline{\quad} = 41 - \underline{\quad} \\ & x = \underline{\quad} \end{array} \qquad \begin{array}{ll} 2. & t - 42 = 28 \\ & t - 42 + \underline{\quad} = 28 + \underline{\quad} \\ & t = \underline{\quad} \end{array}$$

$$\begin{array}{ll} 3. & 83 + y = 91 \\ & 83 \underline{\quad} + y = 91 \underline{\quad} \\ & y = \underline{\quad} \end{array} \qquad \begin{array}{ll} 4. & -65 + r = 67 \\ & -65 \underline{\quad} + r = 67 \underline{\quad} \\ & r = \underline{\quad} \end{array}$$

$$\begin{array}{ll} 5. & 57 + p = 26 \\ & p = \underline{\quad} \end{array} \qquad \begin{array}{ll} 6. & f - 52 = -12 \\ & f = \underline{\quad} \end{array}$$

$$\begin{array}{ll} 7. & -15 + g = -41 \\ & g = \underline{\quad} \end{array} \qquad \begin{array}{ll} 8. & z + -81 = -26 \\ & z = \underline{\quad} \end{array}$$

$$\begin{array}{ll} 9. & 5.7 + d = 89.6 \\ & d = \underline{\quad} \end{array} \qquad \begin{array}{ll} 10. & c - 8.97 = -52.1 \\ & c = \underline{\quad} \end{array}$$



# Plotting Points

Ordered pairs are the directions needed to get from the **origin**, the center of a coordinate graph, to a specific point. The first number tells you how far to move left or right. This is the same as finding a point on a number line. The second number tells you how far to move up or down.

The point  $(5, -6)$  tells you to start at the origin and move 5 spaces to the right and 6 spaces down.

Plot the following points. Connect them in order.

$(3, 2)$

$(7, 0)$

$(2, -1)$

$(2, -6)$

$(-1, -1)$

$(-7, -2)$

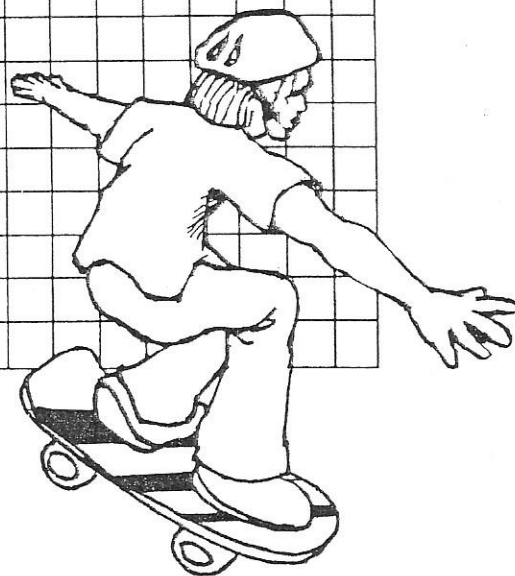
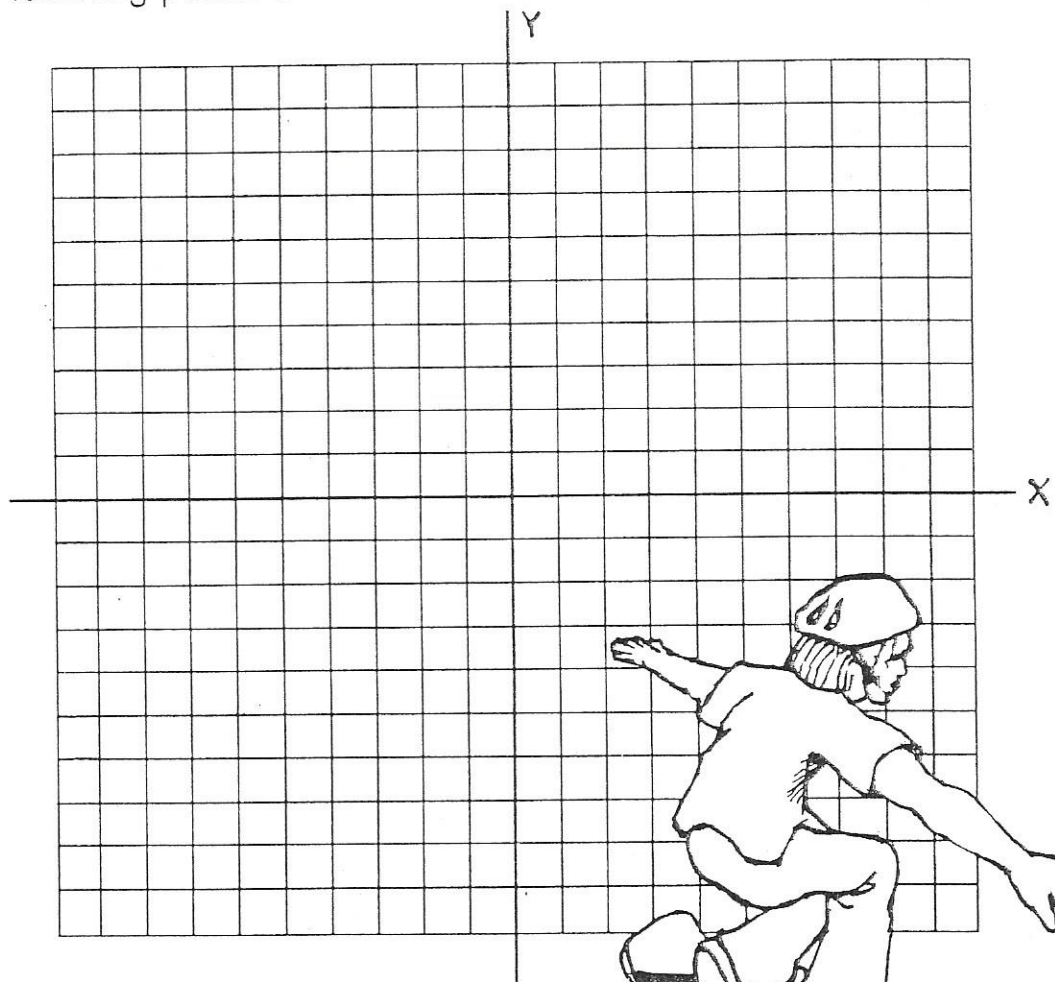
$(-3, 2)$

$(-6, 7)$

$(-1, 4)$

$(4, 8)$

$(3, 2)$



## Mixed Review

Solve the following problems:

$$1. 6\frac{3}{8} + 3\frac{7}{12} =$$

$$2. 8\frac{1}{3} - 4\frac{5}{9} =$$

$$3. 5.13 + 6.1 + 3.17 =$$

$$4. 14.29 - 1.00004 =$$

$$5. \frac{2}{5} \times 6\frac{1}{8} \times 2\frac{1}{7} =$$

$$6. 18\frac{1}{9} \div 3\frac{1}{4} =$$

$$7. 6.14 \times 0.075 =$$

$$8. 4.1 \overline{)15.17}$$

