Wheeler Middle School

Summer Math Packet

Grade 5 into 6

- This packet is designed to help you retain the information you learned in 5th grade and help you transition into 6th grade.
- This packet is available on the school website for download.
- If you need help, you may use the following websites:

  www.khanacademcy.com

  www.IXL.com
- You are expected to know all of your basic facts as you enter 6th grade. Here are some sites to help you:

  www.sheppardsoftware.com

  www.xtramath.org

  https://www.factmonster.com/math/flashcards
- **This is due the first day of school, August 22nd**

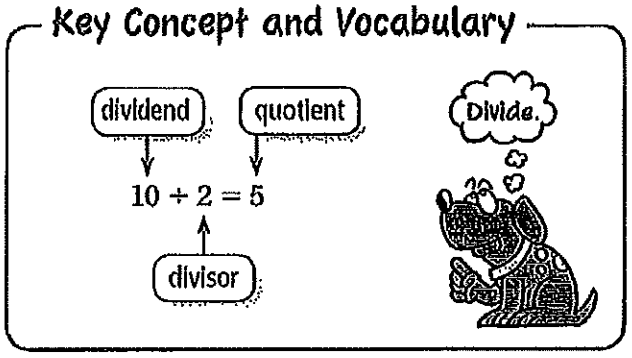
Name: _____

"If you do not use it, you lose it."

Material in this packet taken from Bridgewater/Raynham Regional School District

Divide Multi-Digit Numbers

When one number is divided by another, the result is called a *quotient*. The *dividend* is the number that is divided and the *divisor* is the number used to divide another number.



Example:

Find 592 ÷ 30.

$$\begin{array}{r} 19\ \text{R}22 \\ 30\overline{)\,592} \\ -30 \\ \hline 292 \\ -270 \\ \hline 22 \end{array}$$

Divide each place-value position from left to right.

Since 292 – 270 = 22 and 22 < 30, 22 is the remainder.

The quotient is 19 R22.

Find each quotient.

1. 595 ÷ 25

2. $\frac{874}{38}$

3. 3,570 ÷ 85

4. $\frac{370}{35}$

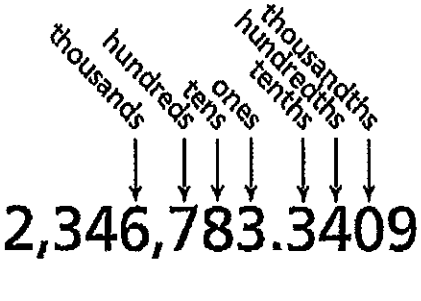
Multiplying by Powers of 10

To multiply by 10, move the decimal point **one** place to the right.	To multiply by 100, move the decimal point **two** places to the right.	To multiply by 1,000, move the decimal point **three** places to the right.
0.4	**0.40**	**0.400**
10 × 0.4 = 4	100 × 0.4 = 40	1,000 × 0.4 = 400

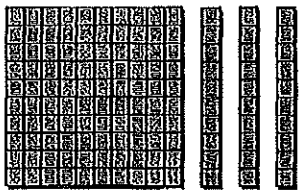
Find each product. Use mental math.

1. 10 x 0.06 =	100 x 0.06 =	1,000 x 0.06 =	10 x 0.6 =
2. 0.653 x 1,000 =	1.09 x 10 =	21.3 x 10 =	10 x 0.007 =
3. 1,000 x 0.046 =	0.46 x 1,000 =	0.46 x 100 =	0.46 x 10 =
4. 1.234 x 100 =	0.11 x 1,000 =	0.11 x 10,000 =	0.11 x 100,000 =

Place Value of Decimals



Visual Model Base 10 block model for 1.30



One Tenths

Skill Examples

1. 156 = "One hundred fifty-six"
2. 1409 = 0ne thousand four hundred nine"
3. 14.009 = Fourteen *and* nine thousandths"
4. 2.07 = Two and seven hundredths"

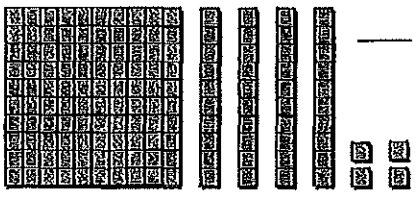
Write the number in words.

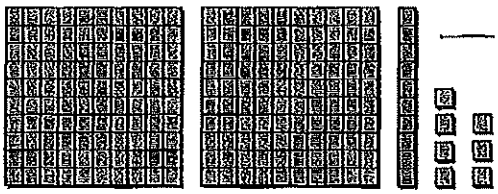
6. 27.35 = _____
7. 1560 = _____

Write the decimal number for the words.

8. Five thousand seven hundred forty-nine *and* thirteen hundredths" = _____
9. Nine hundred eighteen *and* fifty-seven thousandths" = _____

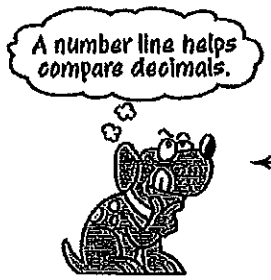
Write the decimal given by the model.

10. 

11 

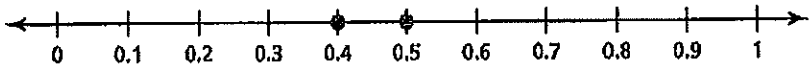
Comparing Decimals

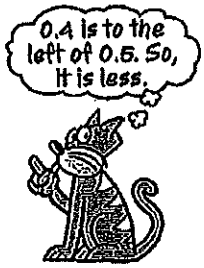
Key Concept and Vocabulary



0.4 is less than 0.5.
$0.4 < 0.5$

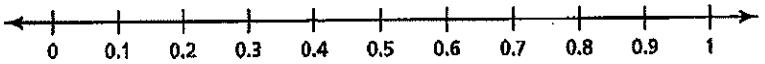
0.5 is greater than 0.4.
$0.5 > 0.4$



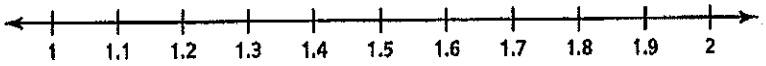


Mark each decimal on the number line. Then write <, > or = to compare each value.

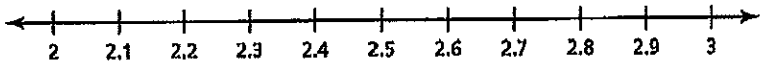
1. 0.3 0.2



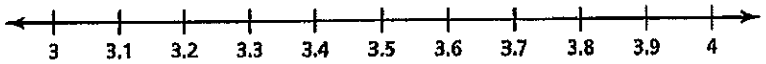
2. 1.7 1.8



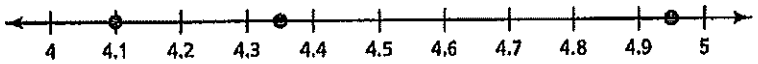
3. 2.35 2.4



4. 3.7 3.55



5. Write the decimals that are shown on the number line.



Write <, > or = to compare each set of decimals.

6 5.66 5.91

7. 1.36 1.9

8. 15.7 15.42

9. 0.8 0.49

Multiply Decimals by Decimals

When you multiply a decimal by a decimal, multiply the numbers as if you were multiplying all whole numbers. To decide where to place the decimal point, find the sum of the number of decimal places in each factor. The product has the same number of decimal places.

Example 1

Find 5.2 × 6.13.

5.2 ← one decimal place
× 6.13 ← two decimal places
156
52
+312
31.876 ← three decimal places

The product is 31.876.

Example 2

Find 2.3 × 0.02.

2.3 ← one decimal place
× 0.02 ← two decimal places
0.046 ← Add a zero to make three decimal places.

The product is 0.046.

Multiply.

1. 7.2 × 2.1

2. 4.3 × 8.5

3. 2.64 × 1.4

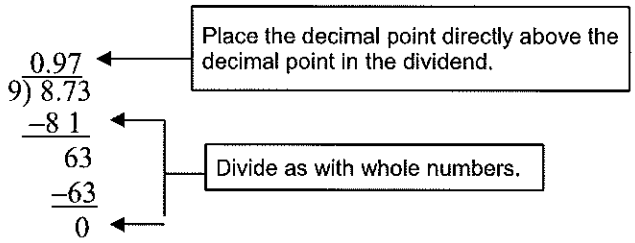
4. 14.23 × 8.21

Divide Decimals by Whole Number

When you divide a decimal by a whole number place the decimal point in the quotient above the decimal point in the dividend. Then divide as you do with whole numbers.

Example 1

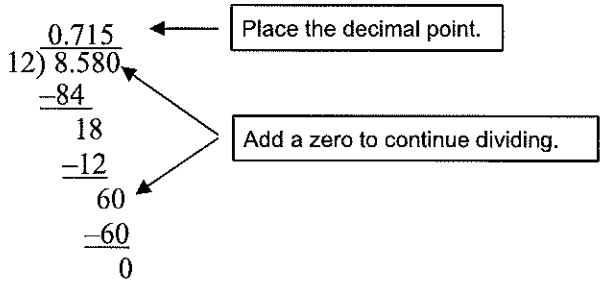
Find 8.73 ÷ 9.



8.73 ÷ 9 = 0.97 Compared with the estimate, the quotient is reasonable.

Example 2

Find 8.58 ÷ 12.



8.58 ÷ 12 = 0.715 Compared with the estimate, the quotient is reasonable.

Exercises

Divide.

1. 9.2 ÷ 4

2. 4.5 ÷ 5

3. 8.6 ÷ 2

4. 2.89 ÷ 4

5. 3.2 ÷ 4

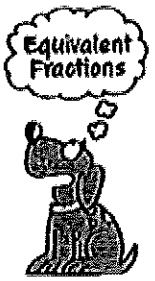
6. 3.45 ÷ 15

Equivalent Fractions

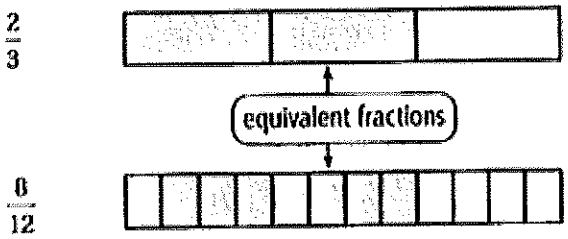
Key Concept and Vocabulary

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

Multiply numerator and denominator by the same number.



Visual Model



Skill Examples

1. $\frac{1}{2} = \frac{1 \cdot 2}{2 \cdot 2} = \frac{2}{4}$
2. $\frac{1}{2} = \frac{1 \cdot 3}{2 \cdot 3} = \frac{3}{6}$

$\frac{1}{2}$, $\frac{2}{4}$, and $\frac{3}{6}$ are all equivalent.

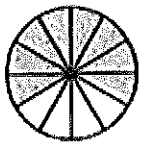
3. $\frac{3}{4} = \frac{3 \cdot 5}{4 \cdot 5} = \frac{15}{20}$
4. $\frac{4}{5} = \frac{4 \cdot 20}{5 \cdot 20} = \frac{80}{100}$

Application Example

5. You eat two-thirds of a pizza that has 12 pieces. How many pieces do you eat?

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

∴ You eat 8 pieces.



Write a fraction that is equivalent to the given fraction.

6. $\frac{1}{2} = \frac{\square}{4}$
7. $\frac{3}{5} = \frac{\square}{15}$
8. $\frac{4}{3} = \frac{\square}{9}$
9. $\frac{1}{3} = \frac{\square}{27}$
10. $\frac{2}{5} = \frac{\square}{20}$
11. $\frac{7}{8} = \frac{\square}{64}$
12. $\frac{3}{7} = \frac{6}{\square}$
13. $\frac{9}{4} = \frac{36}{\square}$
14. $\frac{1}{5} = \frac{10}{\square}$
15. $\frac{3}{9} = \frac{12}{\square}$
16. $\frac{7}{10} = \frac{14}{\square}$
17. $\frac{3}{8} = \frac{9}{\square}$

Shade the model so that the fraction is equivalent.

18. 

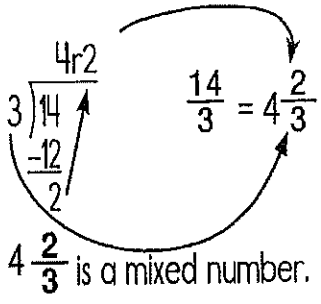
19. 

Improper Fractions to Mixed Numbers

Use division to change each improper fraction into a whole number.

$\frac{14}{3}$ can be rewritten as $14 \div 3$ or $3\overline{)14}$.

$\frac{14}{3}$ is an improper fraction.



The numerator becomes 2; the denominator stays 3.

1. $\frac{15}{2}$

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

3. $\frac{20}{7}$

4. $\frac{43}{5}$

5. $\frac{23}{8}$

6. $\frac{21}{5}$

Simplifying Fractions

When a fraction is in simplest form, 1 is the only common factor of its numerator and Denominator.

Write in simplest form: $\frac{16}{40}$

Step 1
Find the GCF of the numerator and the denominator

Factors of 16: 1, 2, 4, **8**, 16
Factors of 40: 1, 2, 4, 5, **8**, 10, 20, 40
GCF: 8

Step 2
Divide the numerator and the denominator by their GCF.

$\frac{16}{40} = \frac{16 \div 8}{40 \quad 40 \div 8} = \frac{2}{5}$

Check that $\frac{2}{5}$ is in simplest form.

Factors of 2: 1, 2
Factors of 5: 1, 5

The only common factor of 2 and 5 is 1, so $\frac{2}{5}$ is in simplest form.

Write each fraction in simplest form.

1. $\frac{6}{10}$
   Factors of 6: _____
   Factors of 10: _____
   Simplest form: _____

2. $\frac{12}{30}$
   Factors of 12: _____
   Factors of 30: _____
   Simplest form: _____

3. $\frac{9}{36}$
   Factors of 9: _____
   Factors of 36: _____
   Simplest form: _____

4. $\frac{20}{25}$
   Factors of 20: _____
   Factors of 25: _____
   Simplest form: _____

Write the following fractions in simplest form:

5. $\frac{6}{18}$

6. $\frac{15}{40}$

7. $\frac{8}{30}$

8. $\frac{24}{27}$

9. $\frac{20}{24}$

10. $\frac{16}{28}$

Adding and Subtracting Fractions

Example 1

$$2\frac{1}{3} \rightarrow \frac{1 \times 4}{3 \times 4} \rightarrow \frac{4}{12}$$
$$+\ 3\frac{3}{4} \rightarrow \frac{3 \times 3}{4 \times 3} \rightarrow \frac{9}{12}$$
$$5 \qquad\qquad \frac{13}{12}$$
$$= 5 + 1\frac{1}{12} = 6\frac{1}{12}$$

1. Find the lowest common denominator (LCD)
2. Rewrite each fraction using the LCD
3. Add or subtract
4. Simplify if possible.

Example 2

$$\frac{7}{8} \longrightarrow \frac{7}{8}$$
$$-\ \frac{1}{4} \rightarrow \frac{1 \times 2}{4 \times 2} \rightarrow \frac{2}{8}$$
$$\frac{5}{8}$$

Add or Subtract.

1. $1\frac{3}{8} + 4\frac{1}{6}$

2. $2\frac{3}{4} + 3\frac{1}{5}$

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

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

Comparing and Ordering Fractions

Example 1

To compare two fractions.

- Find the *least common denominator (LCD)* of the fractions; that is, find the least common multiple of the denominators.
- Write an equivalent fraction for each fraction using the LCD.
- Compare the numerators.

Replace ▒ with <, >, or = to make $\frac{1}{3}$ ▒ $\frac{5}{12}$ true.

The LCM of 3 and 12 is 12. So, the LCD is 12.

Rewrite each fraction with a denominator of 12.

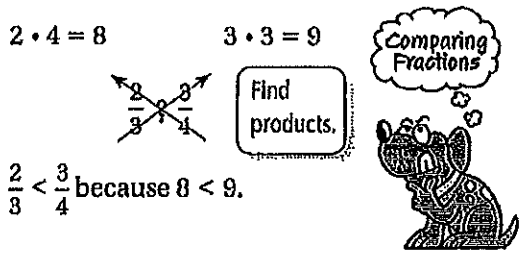
$\frac{1}{3} = \frac{\square}{12}$, so $\frac{1}{3} = \frac{4}{12}$. $\frac{5}{12} = \frac{5}{12}$

Now compare. Since $4 < 5, \frac{4}{12} < \frac{5}{12}$. So, $\frac{1}{3} < \frac{5}{12}$.

Example 2

To compare two fractions.

- Cross multiply each fractions numerator and denominator.
- Compare the product.
- The larger product shows the larger fraction.



$\frac{2}{3} < \frac{3}{4}$ because 8 < 9.

Compare each pair of fractions with <, >, or = .

1. $\frac{5}{12}$ $\frac{3}{8}$

2. $\frac{6}{8}$ $\frac{3}{4}$

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

4. $\frac{4}{5}$ $\frac{8}{11}$

5. $\frac{6}{7}$ $\frac{5}{6}$

6. $\frac{4}{9}$ $\frac{9}{20}$

Multiply Fractions and Whole Numbers

You can multiply whole numbers and fractions by writing the whole number as a fraction. Then multiply the numerators and multiply the denominators.

Example 1

Find $6 \times \frac{3}{8}$.

$6 \times \frac{3}{8} = \frac{6}{1} \times \frac{3}{8}$ Write 6 as $\frac{6}{1}$.

$= \frac{6 \times 3}{1 \times 8}$ Multiply.

$= \frac{18}{8} = \frac{9}{4}$ or $2\frac{1}{4}$ Simplify.

Multiply.

1. $\frac{1}{2} \times \frac{5}{7}$

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

3. $\frac{5}{6} \times 8$

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

5. $10 \times \frac{5}{6}$

6. $\frac{3}{7} \times \frac{3}{4}$

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

8. $\frac{5}{12} \times 2$

Multiply Fractions and Fractions

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

$$\frac{2}{3} \times \frac{4}{5} = \frac{2 \times 4}{3 \times 5} = \frac{8}{15}$$

Example 1

Find $\frac{2}{5} \times \frac{3}{4}$.

$\frac{2}{5} \times \frac{3}{4} = \frac{2 \times 3}{5 \times 4}$ Multiply the numerators. Multiply the denominators.

$= \frac{6}{20}$ or $\frac{3}{10}$ Simplify.

Customary Units of Measure

The chart shows the relationship between units of length in the customary measurement system.

Divide to change a smaller unit to a larger unit.
51 feet = ___ yards
Think: 3 ft. = 1 yd.
51 ÷ 3 = 17
51 ft. = 17 yd.

Multiply to change a larger unit to a smaller unit.
6 yards = ___ inches
Think: 1 yd. = 36 in.
6 × 36 = 216
6 yd. = 216 in.

Units of Length	
12 inches (in.)	= 1 foot (ft.)
3 feet	= 1 yard (yd.)
36 inches	= 1 yard
5,280 feet	= 1 mile (mi.)
1,760 yards	= 1 mile

Circle the greater length:

1. 10 in or 1 ft

2. 3 ft or 38 in

3. 1 ft. 7 in or 17 in

4. 4 ft 4 in or 56 in

5. 1 ft 9 in or 2 ft.

6. 7 ft or 2 yd

Write the equivalent measure:

7. 6 ft = _____ in

8. 18 ft = _____ yd

9. 1.5 ft = _____ in

10. 4 yd = _____ ft

11. 60 in = _____ ft

12. 5,280 ft = _____ mi

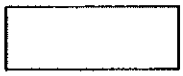
Identifying Polygons

A **polygon** is a closed plane figure formed by three or more line segments with two sides meeting at each vertex.


triangle


quadrilateral


square

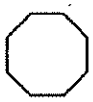

rectangle

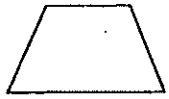

rhombus


parallelogram

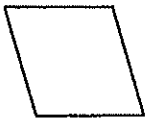

pentagon

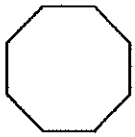

hexagon

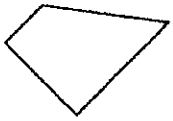

octagon

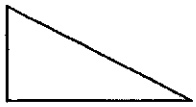

trapezoid

Identify each figure. Then, circle all of the quadrilaterals.

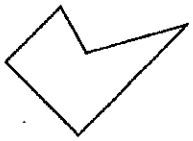
1. 

2. 

3. 

4. 

5. 

6. 

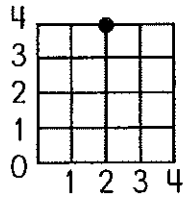
7. 

8. 

Graphing on the Coordinate Plane

An **ordered pair** can be used to locate a point on a grid or coordinate graph. An ordered pair looks like this: (2,4). The first number tells how many units the point is located to the right of zero. The second number tells how many units the point is located up from zero.

Example: Find (2,4). Move right 2, and up 4.



Write the letters for each ordered pair to find the message.

(2,1) (4,5) (1,3) (8,3) (1,0) (4,1) (5,4) (7,1) (1,5) (5,4) (4,3) (1,3) (8,3) (1,5)

(1,0) (7,1) (7,4) (5,1) (1,5) (6,6) (1,0) (1,5) (7,1) (1,3) (4,1) (4,3) (5,4) (5,1)

(2,1) (4,5) (6,3) (1,0) (7,1) (7,4)

(1,2) (1,0) (4,3) (1,5) (4,3) (3,3) (7,1) (6,2)