

# **WAYNE TOWNSHIP PUBLIC SCHOOLS**

## **SUMMER MATH SKILLS REFRESHER**

### **FOR INCOMING**


# **6TH GRADERS**



#### **Some tips and guidelines:**

- ☐ Show all steps for all problems.
- ☐ A calculator should not be necessary, other than for checking answers.
- ☐ Utilize your fifth grade enVision books and notes as needed.
- ☐ The left column reminds you how to do each problem type.
- ☐ The section number is at the bottom right corner of each problem set so you know where to find help.
- ☐ Simplify all fraction answers.
- ☐ Label units where necessary.

**STUDENT NAME:** \_\_\_\_\_

<p>Write the number name and tell the value of the underlined digit for 93<u>0</u>,365.</p> <p>Nine hundred thirty thousand, three hundred sixty-five</p> <p>Since the 0 is in the thousands place, its value is 0 thousands, or 0.</p>	<p><b>1. Write the number name and tell the value of the underlined digit:</b></p> <p>a. 2<u>5</u>,678</p> <p>twenty five thousand, six hundred seventy-eight 5,000</p> <p>b. <u>1</u>7,874,000</p> <p>seventeen million, eight hundred seventy-four thousand 10,000,000</p> <p>c. 4<u>8</u>5,002,000</p> <p>four hundred eighty-five million, two thousand 80,000,000</p> <p>1.2</p>
<p>A place-value chart can help you write the standard form, expanded form, and number name for a decimal.</p>  <p><b>Standard form:</b> 8.026</p> <p><b>Expanded form:</b> <math>8 + 2 \times \frac{1}{100} + 6 \times \frac{1}{1,000}</math></p> <p><b>Number name:</b> Eight and twenty-six thousandths</p>	<p><b>2. Write each number in standard form:</b></p> <p>a. Eight and fifty-nine hundredths</p> <p>8.59</p> <p>b. Seven and three thousandths</p> <p>7.003</p> <p>1.3</p>
<p>Compare. Write <math>&gt;</math>, <math>&lt;</math>, or <math>=</math>.</p> <p>8.45 ○ 8.47</p> <p>Line up the decimal points. Start at the left to compare. Find the first place where the digits are different.</p> <p>8.4<u>5</u> 8.4<u>7</u>      <math>0.05 &lt; 0.07</math></p> <p>So, <math>8.45 &lt; 8.47</math>.</p>	<p><b>3. Compare. Write <math>&gt;</math>, <math>&lt;</math>, or <math>=</math>.</b></p> <p>a. <math>0.584 &gt; 0.58</math></p> <p>b. <math>9.327 &gt; 9.236</math></p> <p>c. <math>5.2 = 5.20</math></p> <p>d. <math>5.643 &lt; 5.675</math></p> <p>e. <math>0.07 &lt; 0.08</math></p> <p>1.5</p>

<p>Round 12.0<u>8</u>7 to the place of the underlined digit.</p> <p>12.0<u>8</u>7 Look at the digit following the underlined digit. Look at 7.</p> <p>Round to the next greater number of hundredths because <math>7 &gt; 5</math>.</p> <p>12.087 rounded to the nearest hundredth is 12.09.</p> <p><b>Remember</b> that rounding a number means replacing it with a number that tells about how many or how much.</p>	<p><b>4. Round each number to the place of the underlined digit.</b></p> <p>a. 10.<u>2</u>45     10.2</p> <p>b. <u>7</u>3.4     70</p> <p>c. 0.1<u>4</u>5     0.15</p> <p>d. 3.<u>9</u>99     4.0</p> <p>e. 13.0<u>2</u>3     13.02</p> <p>f. 45.<u>3</u>98     45.4</p> <p style="text-align: right;">1.6</p>
<p>Lucy bought 3.12 pounds of pears and 9 pounds of apples. Find how many more pounds of apples than pears Lucy bought.</p> <p>Write the numbers. Add a decimal point to the whole number. Annex zeros. Line up the decimal points.</p> $\begin{array}{r} 9.00 \\ - 3.12 \\ \hline \end{array}$ <p>Subtract the hundredths, tenths, and ones.</p> $\begin{array}{r} \phantom{8} \cancel{10}^{10} \\ 9.00 \\ - 3.12 \\ \hline 5.88 \end{array}$	<p><b>5. Add or subtract. Show all work in the space below.</b></p> <p>a. <math>7.06 + 0.85</math>     7.91</p> <p>b. <math>24.07 - 5.316</math>     18.754</p> <p>c. <math>51.92 - 28.003</math>     23.917</p> <p>d. <math>8.71 - 0.4</math>     8.31</p> <p>e. <math>98 + 3.79</math>     101.79</p> <p>f. Talia measured two strings. The green string was 2.37 cm long. The blue string was 4 cm long. How many centimeters longer was the blue string than the green string?</p> <p style="color: purple;">1.63 cm longer</p>

2.4, 2.5, 2.6

Find  $53 \times 406$ .

Estimate:  $50 \times 400 = 20,000$

Multiply the ones. Multiply the tens. Then add the partial products.

$$\begin{array}{r} \phantom{\times} \overset{3}{1} \\ \phantom{\times} 406 \\ \times \phantom{00} 53 \\ \hline \phantom{00} 1218 \longleftarrow 3 \times 406 \\ + \phantom{00} 20300 \longleftarrow 50 \times 406 \\ \hline \phantom{00} 21,518 \end{array}$$

**6. Find each product. Show all work in the space below.**

- a.  $54 \times 9$      486
- b.  $76 \times 59$      4,484
- c.  $47 \times 302$      14,194
- d.  $7,133 \times 4$      28,532

3.2, 3.3, 3.4

Find  $12 \times 0.15$ .

**Step 1**

Multiply as you would with whole numbers.

$$\begin{array}{r} 12 \\ \times 0.15 \\ \hline 60 \\ + 120 \\ \hline 180 \end{array}$$

**Step 2**

Count the decimal places in both factors. Then, place the decimal point in the product the same number of places from the right.

$$\begin{array}{r} 12 \\ \times 0.15 \text{ 2 places} \\ \hline 60 \\ + 120 \\ \hline 1.80 \end{array}$$

So,  $12 \times 0.15 = 1.8$ .

**7. Find each product. Use grids or arrays as necessary. Show all work in the space below.**

- a.  $50 \times 3.67$  **183.5**
- b.  $5.86 \times 5$  **29.3**
- c.  $11 \times 0.06$  **0.66**
- d.  $5.62 \times 75$  **421.5**

4.3, 4.4

Find  $52.5 \times 1.9$ .

Estimate:  $50 \times 2 = 100$ .

$$\begin{array}{r} 52.5 \text{ } \longleftarrow \text{ 1 decimal place} \\ \times 1.9 \text{ } \longleftarrow \text{ + 1 decimal place} \\ \hline 4725 \\ 5250 \\ \hline 99.75 \text{ } \longleftarrow \text{ 2 decimal places} \end{array}$$

The answer is reasonable because 99.75 is close to 100.

**8. Find each product. Remember to count the number of decimal places in both factors to place the decimal correctly in the product. Show all work in the space below.**

- a.  $0.9 \times 0.11$  **0.099**
- b.  $2.4 \times 3.67$  **8.808**
- c.  $0.25 \times 0.3$  **0.075**

4.5, 4.7, 4.9

Find  $789 \div 19$ .

Estimate first:  $800 \div 20 = 40$ .

So, the first digit of the quotient is in the tens place.

Divide the tens. Multiply, subtract, and compare.

$$\begin{array}{r} 41 \text{ R}10 \\ 19 \overline{)789} \\ \underline{-76} \phantom{0} \\ 29 \\ \underline{-19} \\ 10 \end{array}$$

Bring down the ones. Divide the ones. Multiply, subtract, and compare. Compare the quotient with your estimate.

9. Find each quotient. Show all work in the space below.

a.  $16 \overline{)224}$

14

b.  $58 \overline{)7,211}$

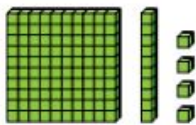
124 R19

c.  $12 \overline{)3,549}$

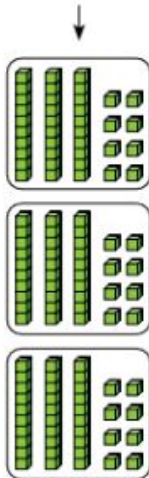
295 R9

5.5, 5.6, 5.7

Find  $1.14 \div 3$ .



Estimate first.  
 $1.14 \div 3$  is less than 1, so start dividing in the tenths place.



$$\begin{array}{r} 0.38 \\ 3 \overline{)1.14} \\ \underline{-9} \phantom{0} \\ 24 \\ \underline{-24} \\ 0 \end{array}$$

10. Divide. Show all work in the space below.

a.  $6.58 \div 7$  0.94

b.  $34.2 \div 3$  11.4

6.3

Find  $57.9 \div 0.6$ .

Since 0.6 has one decimal place, move the decimal point one place to the right in both the divisor and the dividend. Then divide.

$$\begin{array}{r} 96.5 \\ 0.6 \overline{) 57.90} \\ \underline{54} \phantom{0} \\ 39 \phantom{0} \\ \underline{36} \phantom{0} \\ 30 \phantom{0} \\ \underline{30} \\ 0 \end{array}$$

Annex more zeros in the dividend if needed.

So,  $57.9 \div 0.6 = 96.5$ .

**11. Divide.** Remember to place the decimal point in the quotient above the decimal point in the dividend before dividing. Show all work in the space below.

- a.  $16.4 \div 0.8$  20.5  
 b.  $40.02 \div 8.7$  4.6  
 c.  $9.6 \div 0.03$  320

6.4, 6.5, 6.6, 6.7, 6.8

Find a common denominator for  $\frac{4}{9}$  and  $\frac{1}{3}$ . Then rename each fraction as an equivalent fraction with the common denominator.

**Step 1** Multiply the denominators:  
 $9 \times 3 = 27$ , so 27 is a common denominator.

**Step 2** Rename the fractions:

$$\frac{4}{9} = \frac{4}{9} \times \frac{3}{3} = \frac{12}{27}$$

$$\frac{1}{3} = \frac{1}{3} \times \frac{9}{9} = \frac{9}{27}$$

So,  $\frac{4}{9} = \frac{12}{27}$  and  $\frac{1}{3} = \frac{9}{27}$ .

**12. Find the common denominator for each pair of fractions. Then rename each fraction as an equivalent fraction with the common denominator.**

- a.  $\frac{3}{5}$  and  $\frac{7}{10}$  CD=50

$$\frac{30}{50} \text{ and } \frac{35}{50}$$

- b.  $\frac{5}{6}$  and  $\frac{7}{18}$  CD=18

$$\frac{15}{18} \text{ and } \frac{7}{18}$$

- c.  $\frac{3}{7}$  and  $\frac{1}{4}$  CD=28

$$\frac{12}{28} \text{ and } \frac{7}{28}$$

7.2

Find  $\frac{5}{6} - \frac{3}{4}$ .

**Step 1** Find a common denominator by listing multiples of 6 and 4.

6: 6, 12, 18, 24, 30, 36, 42

4: 4, 8, 12, 16, 20, 24, 28, 32

12 is a common multiple of 6 and 4, so use 12 as the common denominator.

**Step 2** Use the Identity Property to write equivalent fractions.

$$\frac{5}{6} = \frac{5 \times 2}{6 \times 2} = \frac{10}{12} \quad \frac{3}{4} = \frac{3 \times 3}{4 \times 3} = \frac{9}{12}$$

**Step 3** Subtract.

$$\frac{10}{12} - \frac{9}{12} = \frac{1}{12}$$

**13. Add or subtract the fractions. Simplify your answers. Show all work in the space below.**

a.  $\frac{2}{5} + \frac{3}{10}$   $\frac{7}{10}$

b.  $\frac{1}{9} + \frac{5}{6}$   $\frac{17}{18}$

c.  $\frac{3}{4} - \frac{5}{12}$   $\frac{4}{12} = \frac{1}{3}$

d.  $\frac{7}{8} - \frac{2}{3}$   $\frac{5}{24}$

7.3, 7.4, 7.5



Gil has two lengths of wallpaper,  $2\frac{3}{4}$  yards and  $1\frac{7}{8}$  yards long. He used some and now has  $1\frac{5}{6}$  yards left. How many yards of wallpaper did Gil use?

**Step 1**

Add to find the total amount of wallpaper Gil has.

$$\begin{array}{r} 2\frac{3}{4} = 2\frac{18}{24} \\ + 1\frac{7}{8} = 1\frac{21}{24} \\ \hline 3\frac{39}{24} \end{array}$$

Gil used  $2\frac{19}{24}$  yards of wallpaper.

**Step 2**

Subtract to find the amount of wallpaper Gil used.

$$\begin{array}{r} 3\frac{39}{24} = 3\frac{39}{24} \\ - 1\frac{5}{6} = 1\frac{20}{24} \\ \hline 2\frac{19}{24} \end{array}$$

**14. Add or subtract the mixed numbers. Show all work in the space below.**

a.  $5\frac{1}{2} + 2\frac{1}{8}$   $7\frac{5}{8}$

b.  $7\frac{5}{6} - 3\frac{2}{3}$   $4\frac{1}{6}$

c.  $3\frac{1}{4} + 1\frac{5}{6}$   $5\frac{1}{12}$

d.  $9 - 3\frac{3}{8}$   $5\frac{5}{8}$

7.11

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

Multiply the numerators to find the numerator of the product. Multiply the denominators to find the denominator of the product.

$$\frac{4}{5} \times \frac{3}{4} = \frac{4 \times 3}{5 \times 4} = \frac{12}{20} \text{ or } \frac{3}{5}$$

**15. Multiply the fractions. Then, simplify. Show all work in the space below.**

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

b.  $\frac{3}{8} \times \frac{8}{3}$   $\frac{24}{24} = 1$

c.  $\frac{7}{8} \times \frac{3}{2}$   $1\frac{5}{16}$

Find  $3\frac{1}{2} \times 2\frac{7}{8}$ .

Estimate:  $3\frac{1}{2} \times 2\frac{7}{8}$  is about  $4 \times 3 = 12$ .

Rename fractions, then multiply.

$$\frac{7}{2} \times \frac{23}{8} = \frac{161}{16} = 10\frac{1}{16}$$

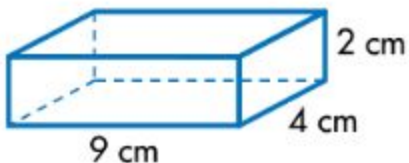
The product  $10\frac{1}{16}$  is close to the estimate, 12.

**16. Multiply the mixed numbers. Rewrite your final answer as a mixed number. Show all work in the space below.**

a.  $2\frac{1}{3} \times 4\frac{1}{5}$   $9\frac{4}{5}$

b.  $3\frac{3}{5} \times 2\frac{5}{7}$   $9\frac{27}{35}$

Find the volume of this rectangular prism.



Volume = length  $\times$  width  $\times$  height

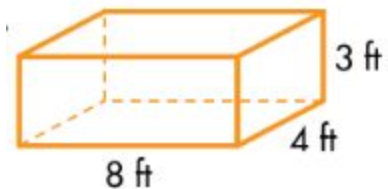
$$V = \ell \times w \times h$$

$$= 9 \text{ cm} \times 4 \text{ cm} \times 2 \text{ cm}$$

$$V = 72 \text{ cubic centimeters or } 72 \text{ cm}^3$$

The volume of the prism is  $72 \text{ cm}^3$ .

**17. Find the volume of the rectangular prism.**



$96 \text{ ft}^3$

Use the order of operations to evaluate  
 $50 + (8 + 2) \times (14 - 4)$ .

### Order of Operations

1 Calculate inside parentheses, brackets, and braces.

2 Multiply and divide from left to right.

3 Add and subtract from left to right.

Perform the operations inside the parentheses, brackets, and braces.

$$50 + (8 + 2) \times (14 - 4) = 50 + 10 \times 10$$

Multiply and divide in order from left to right.

$$50 + 10 \times 10 = 50 + 100$$

Add and subtract in order from left to right.

$$50 + 100 = 150$$

18. Evaluate each expression. Show all work in the space below.

- a.  $4 + 8 \times 6 \div 2 + 3$  31  
b.  $[(8 \times 25) \div 5] + 120$  160  
c.  $(18 - 3) \div 5 + 4$  7  
d.  $8 \times 5 + 7 \times 3 - (10 - 5)$  56

13.1, 13.2