

Unit 9: Fractions, Decimals, and Percents Study Guide

Vocabulary/Terminology You Should Know:

- * **percent** - per 100 or out of 100 ($100\% = 1$ whole)
- * **terminating decimal** - terminates or stops - Examples: .5 or .254
- * **repeating decimal** - repeats or continues a pattern - Examples: .3333... or .24512451...
- * **convert** - to change (When we convert fractions, decimals, & percents, we change their form and/or function.) Example: $1/5 = 10/50 = 20/100 = .20 = 20\%$
- * **estimation strategy** - estimating to find an answer when an exact answer is not called for. It is one way to figure out where a decimal point goes. Example: $98.5/5 = 19.7$ (Round 98 to 100 and divide by 5, that equals 20, so 19.7 must be the correct placement for the decimal.)

Formulas For Finding the Missing Number:

1. 10% of 40 = _____ $10\% = 10/100 = 1/10$
 $1/10$ of 40 = 4
2. 20% of _____ = 6 $20\% = 20/100 = 2/10 = 1/5$
 $1/5$ of what = 6
 $(6/1) \times 5 = 30$
3. _____% of 32 = 8 $8/32 = 1/4 = 25\%$

Parts of:

1. **Division problem:** quotient, divisor, dividend, & remainder
2. **Multiplication problem:** factors, product
3. **Fractions:** numerator, denominator

Conversion Formulas

1. To change a fraction into a decimal, divide the numerator by the denominator (N/D)
Example: $2/5 = 2$ divided by $5 = .4$
Example: $3/7 = 3$ divided by $7 = .428 = 43$ (Round to the hundredth.)
2. Change a fraction into a percent
*Rename it as a fraction with a denominator of 100.
 $3 = 3 \times 20 = 60$
 $5 = 5 \times 20 = 100 = .60 = 60\%$
* N/D %
* N/D $\times 100$
Example: $4/7 = 4$ divided by $7 = .5714285 \times 100 = 57.1... \text{ or } 57\%$

Common Fraction/Decimal/Percent Equivalents (These should be secure.)

$$1/2 = .5 \text{ or } .50 = 50\%$$

$$1/10 = .10 = 10\%$$

$$1/4 = .25 = 25\%$$

$$3/4 = .75 = 75\%$$

$$1/5 = .2 \text{ or } .20 = 20\%$$

Multiplication & Division of Decimals

1. **Multiplication** - multiply as usual, then count the number of digits to the right of each decimal and place the decimal point in the product that many places from the right.

Examples: 23.4 5.67

$$\begin{array}{r} \times 22 \\ \hline 514.8 \end{array}$$

$$\begin{array}{r} \times 4.8 \\ \hline 27.216 \end{array}$$

2. **Division** - divide as usual, making sure the decimal point in the quotient is directly above the decimal point in the dividend. (Write this in your quotient before you begin dividing.) Examples: $3.6/12 = .3$ $.36/12 = .03$

*Don't forget... when you have the product and/or quotient but do not know where to place the decimal point... use an **estimation strategy**. Round the factors and/or dividend & divisor and complete the algorithm to show you where the decimal point should be placed.

Story Problem Terminology

***regular price** or **list price** - the full price of an item

***discount** - the amount to be subtracted from the full price

(Using a **percent** or a **fraction of discount** are the two most common ways the amount of the discount are shown.)

***sale price** - the price after the discount has been subtracted

Secure Goals for the Written Assessment

Students should be able to

- * Write a ratio as a fraction and a percent.
- * Fill in a table of equivalent fractions, decimals, and percents.
- * Use a calculator to rename fractions as decimals.
- * Use a calculator to rename fractions as percents.
- * Shade a percent of a region. Write the percent as a fraction and a decimal.
- * Find the area and perimeter of a rectangle, parallelogram, and a triangle.
- * Insert parentheses to make number sentences true.