Converting Fractions, Decimals, and Percents

Changing Fractions to Decimals:

- **Divide the numerator by the denominator.**

$$\frac{2}{5} =$$ $$\frac{6}{7} =$$ $$2\frac{3}{5} =$$

Changing Fractions to Percents:

- **Change the fraction to a decimal (numerator ÷ denominator)**
- **Move the decimal *twice* to the right.**

$$\frac{5}{8} =$$ $$\frac{1}{3} =$$ $$1\frac{3}{7} =$$

Changing Decimals to Fractions:

- **Underline the last digit and identify its place value. That place value becomes the denominator.**
- **Remove the decimal from the number. That becomes your numerator.**
- **Simplify if possible.**

.62=   .4=   .142=   3.60=

Changing Decimals to Percents:

- **Move the decimal *twice* to the right.**

.16=   .04 =   1.42 =   .007 =

Changing Percents to Decimals:

- **Move the decimal *twice* to the left.**

27% =   157% =   .09% =   8% =

Changing Percents to Fractions:

- **First, change the percent to a fraction. (Move decimal twice to the left)**
- **Second, underline last digit (that place value will be your denominator), remove the decimal and that will be your numerator.**
- **Simplify if possible.**

5% =   48% =   .3% =   1.15% =

Fraction	Decimal	Percent
$\frac{1}{2}$		
		9%
	.625	
		28%
$\frac{2}{9}$		
	.3	
$2\frac{1}{5}$		
		108%

Using Fractions, Decimals, and Percents to Solve

I. Finding the Fraction/ Decimal of a Number

- When you are finding a fraction or decimal **of** something, then you need to

    _____.

Ex) Find $\dfrac{1}{8}$ of $\dfrac{1}{10}$.

Ex) Find $\dfrac{3}{5}$ of 80.

Ex) Find 0.4 of 100

Ex) Find 0.2 of 0.5

Ex) Find 0.25 of 80

Ex) Find 0.6 of 1.8

II. Finding the Percent of a Number

1. When you are finding a percent **of** a number or price, you need to convert the percent to a

    _____ first and then _____ the number or price by that

    _____. This will tell you how much of the number or price that percent

    makes up.

Examples

Ex) What is 20% of 150?

Ex) What is 40% of 80?

Ex) What is 32% of 1000?   Ex) What is 5% of $4.00?

III. Finding Discounts

- The key word is **"off"**. It tells you that you need to _____.

- To find the new (or sale) price, you need to:

    1) Find what the discount is first (by finding what the fraction/ percent of the original price is).

    2) Then **subtract** that amount from the original price to find the new (or sale) price.

New (or Sale) Price = Original Price – Discount

Examples

Directions: Find each discount and new (or sale) price.

Ex) original price: $150   Ex) original price: $700

   fractional discount: $\frac{1}{6}$ off   percent discount: 30% off

Ex) original price: $25   Ex) original price: $8.49

   fractional discount: $\frac{1}{5}$ off   percent discount: 5% off

Ex) What is $\frac{1}{4}$ off the price, $120?   Ex) What is 15% off the price, $2.60?

IV. Percent Increase/ Decrease

- When you are finding a percent of_____ or _____, you must:

1) Find the amount it increased or decreased by.
2) Put the amount it increased or decreased by over the original amount to form a fraction, divide it out to get a decimal, and convert the decimal to a percent.

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Formula for Percent Increase/ Decrease

$$\text{percent increase} = \frac{amount\ of\ increase}{original\ amount}$$

OR

$$\text{percent decrease} = \frac{amount\ of\ decrease}{original\ amount}$$

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Examples

Ex) The price of gas rose from $1.60 per gallon in January to $200 per gallon in April. What was the percent increase?

Ex) A student's score on a pre-algebra test was 84. His score on a second pre-algebra test was 92. What was the percent of increase in the student's score?

Ex) A discount store normally sells DVDs for $14.44. If the DVDs go on sale for $13.72, which of the following is the percent of decrease in the price?

Ex) A pair of shoes is on sale for $32. The original price was $48. What is the percent decrease in the price?

V. Word Problems Involving Percents

Ex) Ashley bought a jacket that was on sale for $14.40 after a discount of 20%. What was the original price of the jacket?

A) $11.52
B) $16.40
C) $17.28
D) $18.00

Ex) The Pioneer Middle School year book had 50 ads placed last year. This year there was a 20% increase in the number of ads. What was the increase in the number of ads placed?

A) 10
B) 20
C) 30
D) 40

Ex) Last month Trenton earned $175 from raking leaves in his neighborhood. This month he hopes to earn 65% more than he earned last month. How much money will Trenton need to earn in order to meet his goal?

Ex) Last year the Pioneer Middle School football team won 15 games. This year the team experienced a 40% decrease in the number of games that it won. How many games did the Pioneer Middle School football team win this year?

Ex) The town of Smallville has a population of 2,560 people. Of the 2,560 people, 30% are under the age of 18, 27% are between the ages 18 and 40, and 43% are over the age of 40. How many people in Smallville are the under the age of 18?

Ex) Mr. Madsen teaches a total of 150 students. Of the 150 students, 30% are dancers, 8% are musicians, and the rest are athletes. How many athletes does Mr. Madsen teach?

Ex) A football team has 120 players. Of the 120 players, 25% bought their own pair of cleats. If each pair of cleats costs $2.50, how much money did these players spend altogether?

Ex) An airline has 400 flights a day. Of these, 80% depart before 6 p.m. Flights leaving before 6 p.m. depart on schedule $\frac{3}{4}$ of the time. How many flights leaving before 6 p.m. depart on schedule each day?

Ex) Pioneer Middle School has an operating budget of $136,000. The principal, Mr. Stout, decided to give Mrs. Watkins 30% of that money to spend on new technology. Mrs. Watkins spent 16% of her share to buy Macbooks. How much money was spent on buying Macbooks?

VI. Multiple Step Word Problems Involving Fractions, Decimals, & Percents

Ex) The table below shows the number and grade level of students at Pioneer Middle School who participate in extracurricular activities.

Number of Students			
	Cheerleading	**Volleyball**	**Cross Country**
6th Graders	3	15	10
7th Graders	10	11	22
8th Graders	13	7	6

a) What percent of the 6th graders participate in cross country? Show or explain how you found your answer.

b) What percent of the total students who participate in extracurricular activities are 7th graders who play volleyball? Show or explain how you found your answer.

Ex) Jayden wanted to see how many of the 1,296 students at Pioneer Middle School liked the movie, *Step Up 3*. She decided to survey 100 students to get a better idea. The results of the survey are shown in the table below.

Survey of Students	
	Percent of Students
Like	44
Dislike	31
Neutral	25
Total	100

Based on the survey, how many of the 1,296 students are neutral toward the movie, *Step Up 3*?