Unit 3: Linear Equations and Inequalities in One Variable

Lesson 9: Application Day 1

Objectives:

- Students will be able to reinforce the key concepts, ideas, and procedures from Unit 3. (Solving equations/inequalities, word problems, percents, and literal equations)
- Students will be able to collaborate and piece together their understanding.

Vocabulary:

Equation
Constant
Inequality
Compound Inequality
Percent Increase/ Percent Decrease
Literal Equation
Distance
Consecutive integer
Consecutive even/odd integer
Distance formula
Coin and Age expressions
Ratios & Proportions

Homework: Study guides portfolios and Finish Review packet.

Unit test # 3 is next Block

Linear Equations, Inequalities, & Word Problems

1] Solve for x: 4x – 7 = 4x – 2 – x	**Solving Multi-Step Equations** 	2] Solve for x: 7(5x – 2) = 6(6x – 1)
3] Solve & graph for x: $-4x+6 \geq 3x-6$	**Solving Multi-Step Inequalities**  **remember:**	4] Solve & graph for x: $4 < 2x+6 < 12$

5] Solve for d: $C = \pi d$	**Literal Equations**	6] Solve for e: $m = \frac{2e}{v^2}$
7] A] 43 is what percent of 215? B] What number is 18% of 200	**Percents**	8] Mr. Bryant's landlord has increased his rent from $925 per month to $1000 per month. Find the percent increase in Mr. Bryant's monthly rent payment. Give your answer to the nearest hundredth of a percent.
9] The value of a stock dropped from $46.30 per share to $31.50 per share over a given week. Find the percent decrease in the stock's value over that time period. Give your answer to the *nearest percent*.		10] David has $425 worth of items in his shopping cart. He receives a discount of 30% for the items at the checkout. If he then has to pay an 8% sales tax, what is the final amount that David paid?

11] If one-half of a number is 8 less than two-thirds of the number, what is the number?	**Linear Equation Word Problems** 	12] Robin spent $17 at Hershey Park for admission and rides. If she paid $5 for admission, and rides cost $3 each, what is the total number of rides she went on?
13 A] $\frac{x+8}{15} = \frac{x}{5}$	**Linear equations using fractions**	13 B] $\frac{x}{-4} + 10 = 20$

14] An online music club has one-time registration fee of $13.95 and charges $0.49 to buy each song. If Emma has $50.00 to join the club and buy songs. What is the maximum number of songs she can buy?	**Linear Inequality Word Problems** 	15] A doughnut shop charges $0.70 for each doughnut and $0.30 for a carryout box. Shirley has $5 to spend. At most, how many doughnuts can she buy if she also wants them in one carryout box?
16] A If 18 plums weigh 54 ounces, then 27 plums weigh how many ounces?	**Ratios & Proportions**	16] B Karen makes 7 T-shirts in 10 days and Rob makes 21 T-Shirts in 30 days. Are the rates proportional?

17] A bicyclist leaves Bay Shore traveling at an average speed of 12 miles per hour. Three hours later, a car leaves Bay Shore, on the same route, traveling at an average speed of 30 miles per hour. How many hours after the car leaves Bay Shore will the car catch up to the cyclist?	**Motion Word Problems**	18] Two trains leave the same station at the same time and travel in opposite directions. One train travels at 80 kilometers per hour and the other at 100 kilometers per hour. In how many hours will they be 900 kilometers apart?
19] Find 3 consecutive integers that sum to 15.	**Consecutive Integer Word Problems**	20] Three consecutive even integers are such that the sum of the smallest and 3 times the second is 38 more than twice the third. Find the integers.

21] A wallet contains the same number of pennies, nickels, and dimes. The coins total $1.44. How many of each type of coin does the wallet contain?

Coin Word Problems

22] The sum of the ages of the three Band brothers is 63. If their ages can be represents as consecutive integers, what is the age of the Older brother?

Age Word Problems