Name:_____**Date:**_____**Period:**_____

Senior Project: Math in the Real World   **Show all Work!**

As you prepare to enter the real-world, my hope is that you take some skills with you to assist with your daily life. Your project will explore different situations you will encounter in the real world.

For each part, complete the following:

a. **Write a paragraph that includes the name of the topic or skill encountered in the real world, why it is important and how it is used in daily life. Your paragraph should be well constructed and free from grammatical and spelling errors. (12 points)**

b. **Provide a situation in word problem form that addresses this skill in the real world. (8 points)**

c. **Provide a diagram, work and solution for the problem (5 points)**

Part I: Arithmetic (Units 1, 2)   25 points

- Topics may Include: Order of Operations, Percent Markup/Mark down, Union & Intersection of Sets, Scientific notation, Functions

Part 2: Algebra (Units 2, 6, 11, 12)   25 points

- Topics may Include: Functions, Linear, Quadratic and/or Polynomial Equations, Proportions, Systems of Equations

Part 3: Geometry/Trigonometry (Units 4, 5, 7, 14)   25 points

- Topics may Include: Triangles, Quadrilaterals, Polygons, Area, Perimeter, Circumference, Surface Area, Volume, Congruence, Similarity, Proportions, Indirect Measurement, Trigonometry

Part 4: Probability & Statistics (Unit 9)   25 points

- Topics may Include: Data Sets, Probability, Combinations and Permutations, Normal Distribution

Presentation: Let your creativity shine through! Projects may be presented in report form, as a PowerPoint (via email) or using a poster or model.

Project Exemplar

Part 1: Arithmetic

   a.   One of the most common skills in everyday life is percent markup. Those who
   sell goods and services typically mark up the cost to of an item to earn a profit. Profit
   margin is a measure of profitability. It is calculated by finding the profit as a
   percentage of the revenue and gauges the degree to which a company earns money. I
   plan to become a business owner, so it is important to know how profitable my
   business is and make adjustments to be successful.

   b. Example:

Company XYZ and ABC both operate in the same industry. Which company has a higher net profit margin?

Company XYZ Income Statement		Company ABC Income Statement	
Revenue	$100	Revenue	$225
Cost of Goods Sold	$20	Cost of Goods Sold	$35
Gross Profit	$80	**Gross Profit**	$190
Operating Expenses	$20	Operating Expenses	$40
Operating Profit	$60	**Operating Profit**	$150
Interest Expense	$5	Interest Expense	$10
Earnings Before Taxes	$55	**Earnings Before Taxes**	$140
Tax Expense	$25	Tax Expense	$60
Net Income	$30	**Net Income**	$80

c.

Company XYZ

$$\text{Net profit} = \frac{\text{Net income}}{\text{Revenue}}$$

$$= \frac{30}{100}$$

$$= 0.30$$

or

30%

Company ABC

$$\text{Net profit} = \frac{\text{Net income}}{\text{Revenue}}$$

$$= \frac{80}{225}$$

$$= 0.3556$$

or

35.56%

Company ABC has a higher profit margin.