Simple Interest
Name: _____

How much will you have/pay?

Business math is not abstract. It is not about solving equations where variables stand for numbers (algebra). It is about being able to calculate a useful value. Almost always, we are calculating money values, interest earned or payed, or the time period we pay or earn interest.

There will be a few math calculations on our summative assessment for savings/investing, the important skills is to understand the values. Typically, we use calculators or computers to calculate financial data. However – we still need to have an idea about what type of number we should get from our calculator or computer.

The purpose of practicing some math in *Personal & Business Finance* class is to develop an awareness as to when a value is reasonable or when we should check a number to make sure it is accurate. Please remember, in the 21st Century, it is not an acceptable excuse to say the calculator or computer made a mistake. We can teach ourselves to catch mistakes and correct them. Financial mistakes, if not quickly corrected, can be very expensive.

For simple interest – this is all you need to know:

- **p = Principle,** or the amount of money we are saving or investing (note savings accounts have interest rates too)
- **r = Interest Rate**, or what we pay (or someone pays us) to use our money (or when we use theirs). Please remember, you will be given interest rates as a percentage and you must move the decimal places to the left to convert to 100's (do you see that the % sign is actually shorthand for "divide by 100"
- **t = time**, how long we will be letting our money grow at a simple interest rate
- **R = Interest Earned** which is calculated as p*r*t or = prt
- **A (amount)** = Principle + Interest Earned or p+R

At its simplest level, here's what you need to know to calculate how much money you have (principal + interest earned) after you invest p (an amount of money, principle) at an i (interest reate) for t (a period of time)

So we see, solving for A is a 2-step process:

1. Interest Earned (R) = prt
2. Amount (A) = principle + interest = p+R

Let's make this simple. An example of this calculation follows. Please double check the math in each example "A" that follows and then please write down the equation and do the second example "B" on your own. PLEASE SHOW YOUR EQUATION IN ORDER TO EARN CREDIT FOR THIS ASSIGNMENT.

1A. How much will we have if we start with $318 and its earns 9% for a year?

R = $318 * 0.09 * 1; R = $28.62

A = $318 + $28.62 = 346.62

1 B. How much will we have if we start with $520 and it earns 7% interests for a year.

2 A. How much will you have to pay back if you borrow $675 for 6 years at an interest rate of 10%?

$$R = 675 * 0.10 * 6 = \$405$$

$$A = \$675 + \$405 = \$1080$$

2. B. How much will you have to pay back if you borrow $421 for 9 years at 4% interest?

3. A. How much will you have if you invest $453.60 at an interest rate of 9% for 8 years?

$$R = \$453.60 * 0.09 * 8 = \$326.59$$

$$A = \$453.60 + \$326.59 = \$780.19$$

3. B. How much will you have if you invest $250 at an interest rate of 6% for 3 years?

4. A. If you borrow $225 for 8 years at an interest rate of 3%, how much will you pay back?

$$R = \$225 * 0.03 * 8 = \$54$$

$$A = 225 + \$54 = \$279$$

4. B. If you borrow $750 for 4 years at an interest rate of 5%, how much will you pay back?

5. A. How much will you have if you invest $1200 at an interest rate of 4% for 2 years?

$$R = \$1200 * 0.04 * 2 = \$96$$

$$A = \$453.60 + \$96 = \$ 549.60$$

5. B. How much will you have if you invest $1500 at an interest rate of 5% for 3 years?

6. A. How much will you have to pay back if you borrow $600 at an interest rate of 15% for 10 years?

$$R = \$1500 * 0.15 * 10 = \$2250$$

$$A = \$1500 + \$2250 = \$3750$$

6. B. How much will you have if you invest $350 at an interest rate of 7% for 10 years?

7. A. How much will you have if you invest $2000 at an interest rate of 1% for 15 years?

$$R = \$2000 * 0.01 * 15 = \$300$$

$$A = \$2000 + \$300 = \$2300$$

7. B. How much will you have if you invest $3000 at an interest rate of 1% for 15 years?