NOTES: Ratios and Rates

Ratio	A comparison of two quantities (amounts) Example: Will made 7 free throws in 10 attempts. (You are comparing the number of free throws that he made to the number that he attempted.)
Ways to write ratios	7 to 10 7 out of 10 7 : 10 $\frac{7}{10}$ → **Most common**
Ratios are similar to fractions but they are not fractions!!!	Ratios <u>can</u> be <u>simplified</u> Ratios <u>cannot</u> be changed to mixed numbers Must leave a <u>denominator of 1</u> in ratios **Do not read them as fractions - read them as comparisons! "7 to 10" and NOT "Seven tenths"
Rate	A ratio that compares quantities measured in different units Example: Jane drove 75 miles in 3 hours $\frac{\text{miles}}{\text{hour}}$ $\frac{75}{3} = \frac{25}{1}$ ← $3\overline{)75}$ = 25 (60, 15, 15, 0) 25 miles per hour * Divide to figure out how many miles for one hour
Unit rate	A rate where the "denominator" (second #) is a 1. **"How many ______ per 1 _______?"**
How to calculate unit rate	Divide both the "numerator" and "denominator" by the "denominator"
Examples of unit rate	1) Gordon memorized 560 vocabulary words in 28 days. $\frac{\text{words}}{\text{days}}$ $\frac{560}{28} = \frac{20}{1}$ $28\overline{)560}$ = 20 (56, 00) **Word form:** 20 words per day * Divide to figure out how many words in one day

	2) Pete added 12 ounces of chocolate chips to a recipe that made 48 cookies. $\frac{oz}{cookies}$ $\frac{12}{48} = \frac{.25}{1}$ .25 or $\frac{1}{4}$ **Word form:** $\frac{1}{4}$ ounce per cookie
Better Buy	Something is a better buy if you pay less per 1 "item"
	Example: Jonie paid $25.40 for 10 gallons of gasoline. Andre paid $33.28 for 13 gallons of gasoline. Who got the "better buy?" First, find out the **unit rate**. (How much per 1 gallon) Jonie: $\frac{\$25.40}{10\,gallons} = \frac{\$2.54}{1\,gallon}$ Andre: $\frac{\$33.28}{13\,gallons} = \frac{\$2.56}{1\,gallon}$ Even though Andre got 13 gallons which is more than Jonie's 10 gallons, Andre paid more per 1 gallon. You want to pay <u>less money</u> per 1 gallon because then you are not spending as much!! **Jonie got the better buy.**
When dealing with money in a unit rate problem…	always put the money on the top of the ratio. (Find $ per 1 item)