

5A Numerical Sense of Percent.doc

Prealgebra

Name: _____ Due Date: _____

Why: Percents are commonly used in everyday life. For example, the newspaper might report that 62% of county favors a bond measure. If the local television station reports this statistic as 6 out of 10 voters support the bond measure, is this accurate? Being able to interpret information that is given as a percent is an important part of being mathematically literate in today's society.

Learning Objectives:

- 1) Perform mental math and estimation with percents.
- 2) Use the concept of a percent to identify equivalent quantities.
- 3) Solve problems with too much information, or figure out what information is missing.

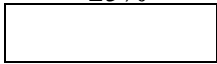
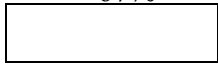
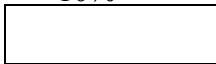
WARM-UP:

- 1) Translate the following words to algebraic notation:

is	of	what	percent
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- 2) What is 10% of \$1.20? What is 10% of \$4.60? What is 10% of \$9.45?
- 3) If you don't have a calculator with you, what is an easy method you can use to calculate 10% of a number?
- 4) Extend this idea: **Without a calculator** (using only mental math) answer the following. Briefly document your work.
 - a) What is 10% of \$2.40?
 - b) What is 5% of \$2.40?
 - c) What is 20% of \$2.40?

ACTIVITY:

- 1) Shade the rectangles to show approximations for the percentages
 - a) 25% 
 - b) 67% 
 - c) 10% 
- 2) Give reasonable estimates for the percent of each figure that is shaded
 - a)
 - b)
 - c)
- 3) Calculating a tip:
 - a) What percent do you tip when you eat at a restaurant?
 - b) If you go to a restaurant and spend \$8.40 for lunch, how much should you tip? Show your work or explain how you used a calculator.

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- c) If you didn't have a calculator with you, explain how could you estimate the tip using only "mental math."
- 4) Calculating sales tax:
- a) What percent do Contra Costa County residents pay in sales tax?
- b) If you purchase a CD for \$17.95, how much is the sales tax? Show your work or explain how you used your calculator.
- c) If you didn't have a calculator with you, explain how could you estimate the tax using only 'mental math'.
- 5) Choose one to fill in the blank: 1 in 2 1 in 5 2 out of 3 3 out of 4 7 out of 10
Recent immunization statistics show that roughly 75% of two-year olds receive a measles vaccine. This is the same as saying _____ of two-year olds are vaccinated for measles.
- 6) Take the following survey in your class. Calculate the percent of students who answer YES to each question. **Did the majority of the class answer YES to either of the questions?**
- a) I have been to see a counselor to plan my classes for next semester.
- b) I do math homework for four or more hours each week.
- 7) If 7 out of 8 students say that they like using computers in math class, approximately what percent of students have this opinion?
Circle the percent: 25% 33% 50% 88% 100%
Explain how you made your decision:

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- 8) The following problems may have too much to not enough information.
- If you have enough information, then translate into an equation and solve the problem.
 - If you do not have enough information, then **identify the missing piece of information** that is needed to solve the problem.
- a) A real estate agent makes 4.5% commission on the sale of a \$257,000 home. How much did she make?
- b) Sixty-three percent of LMC students are women. How many women attend LMC?
- c) The Mortgage Bankers Association of America suggests that your monthly mortgage payment be between 25% and 28% of your total monthly income. Although interest rates for 30-year fixed mortgages are as low as 5.5%, the chairman of the Federal Reserve recently stated that most people should get 5- or 7-year ARMs, because rates for ARMs can be as low as 4.2%. Based on this advice, what is a reasonable mortgage payment for you?
- d) I have a \$21,000 fixed-rate car loan at 3.5%. Inflation is 0.8%. What is the simple interest on the loan after 18 months? [*Remember: $I = PRT$*]
- e) After 6 years, my car has depreciated to 72% of its original value. According to the Kelley Blue Book, my car is worth \$12,880 today. If I put an average of 11,000 miles per year on my car, then what was its original value?