

## 5B Applications of Percent.doc

Prealgebra

Name: \_\_\_\_\_ Due Date: \_\_\_\_\_

**WHY:** Percents are often used to indicate change, for example increase (tax, commission) and decrease (sale).

### LEARNING OBJECTIVES:

- 1) Solve problems involving percents with too much information, or figure out what information is missing.
- 2) Communicate your reasoning clearly, accurately, and logically.

### WARM-UP:

- 1) Translate the following words to algebraic notation:

|              |              |
|--------------|--------------|
| increased by | decreased by |
|--------------|--------------|

- 2) When you have a percent increase (or a percent decrease), you divide the increase (or decrease) by \_\_\_\_\_.

### ACTIVITY:

- 1) The following problems may have too much to not enough information.
  - If you have enough information, then 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) Fall 2004 fees for full-time undergraduates at CSU Chico were \$1398.00. In January, Gov. Schwarzenegger proposed a \$240 million cut from the CSU system, a 10 percent increase in fees for undergraduates, and a 10 percent reduction in enrollment. If the legislature passes the governor's budget, how much will Chico's undergraduate fees be in Fall 2005?
  - b) A pair of shoes is marked 15% off. How much do the shoes cost?
  - c) Used textbooks are sold at a discount rate of 15%. If you pay \$79 for a used textbook, what would a new one cost?
  - d) This year, the premiums for Kaiser are 132% of what they were last year. If premiums are \$259 per month this year, then what were they last year?
- 2) The tables at the top of the next page show the civilian, noninstitutional U.S. labor force (how many people are seeking jobs) and employment. ("Civilian, noninstitutional" = not on active duty in the Armed Forces, and not inmates of institutions such as penal and mental facilities, homes for the aged.)
  - a) Did the labor force shrink or grow from June, 1999 to June, 2003? By what percent?
  - b) Did the employment shrink or grow from June, 1999 to June, 2003? By what percent?

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**Civilian labor force  
(Numbers in thousands)**

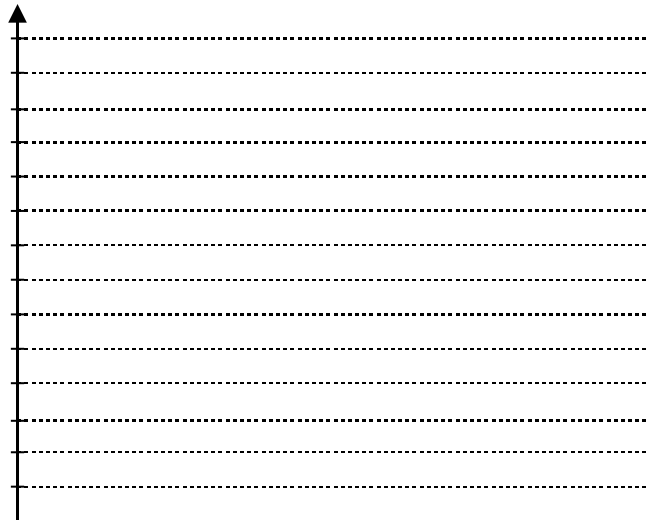
| Year | Mar     | Jun     | Sep     | Dec     |
|------|---------|---------|---------|---------|
| 1994 | 129,718 | 132,115 | 131,155 | 131,418 |
| 1995 | 131,423 | 133,447 | 132,341 | 132,008 |
| 1996 | 132,692 | 135,083 | 134,230 | 134,583 |
| 1997 | 135,524 | 137,557 | 136,375 | 136,742 |
| 1998 | 136,967 | 138,798 | 137,903 | 138,297 |
| 1999 | 138,418 | 140,666 | 139,217 | 139,941 |
| 2000 | 142,123 | 143,874 | 142,149 | 143,110 |
| 2001 | 143,664 | 144,553 | 143,601 | 144,042 |
| 2002 | 144,334 | 145,940 | 145,167 | 144,807 |
| 2003 | 145,801 | 148,117 | 146,166 | 146,501 |
| 2004 | 146,525 |         |         |         |

**Employment  
(Numbers in thousands)**

| Year | Mar     | Jun     | Sep     | Dec     |
|------|---------|---------|---------|---------|
| 1994 | 120,844 | 123,864 | 123,775 | 124,729 |
| 1995 | 123,943 | 125,720 | 125,173 | 125,136 |
| 1996 | 124,992 | 127,706 | 127,529 | 127,903 |
| 1997 | 128,125 | 130,463 | 129,972 | 130,785 |
| 1998 | 130,150 | 132,265 | 131,864 | 132,732 |
| 1999 | 132,299 | 134,395 | 133,555 | 134,696 |
| 2000 | 136,054 | 137,915 | 136,790 | 137,846 |
| 2001 | 137,155 | 137,737 | 136,835 | 136,269 |
| 2002 | 135,558 | 137,181 | 137,377 | 136,599 |
| 2003 | 136,783 | 138,468 | 137,731 | 138,556 |
| 2004 | 137,691 |         |         |         |

c) What can you conclude about the unemployment rate from (a) and (b)? Why?

d) Find the unemployment rates for June of each year from 1999 to 2003 and display them in a bar chart.



e) Describe the pattern in your bar chart.

f) What other information would you need if I asked you to compare and contrast Democrats' and Republicans' record on the issue of unemployment?