

Indicators

Objective:

1.01 Develop and use ratios, proportions, and percents to solve problems.

Vocabulary and Resources		
equivalence	part-to-whole relationship	percent of increase
equivalent ratios	taxes	percent of decrease
ratio table	commission	wholesale
rate	interest	retail
unit rate	discount	similarity
best buy	mark-up	circle graphs
part-to-part relationship	percent of change	

A. Jenni is mixing punch for 18 people. Her recipe, which calls for $2\frac{1}{2}$ cups of sugar, serves 12. How much sugar will she use if she adjusts the recipe to serve 18?

B. One out of every three M&Ms™ is red. If a bag contains approximately 65 M&Ms™, how many would you expect to be red?

C. Zeb, Stacy, and Devon are best friends. Unfortunately they were placed on each of the three seventh grade teams at their school. Each of their math teachers gave the same test last week but their grading methods were different. Stacy said she received a score of $\frac{25}{30}$. Devon reported a score of 75%. Zeb explained that his teacher records scores as a ratio of the number of problems correct to the number of problems incorrect and that he received a score of 24:6. Give the friends' performance on the test in ascending order. Justify your results.

D. Braxton has cows and pigs in his barnyard. The ratio of cows to pigs is 2 to 3. If there are 100 animals in the barnyard, how many of each are there?

E. At La Cantina Italian Grill 12 girls shared five large pizzas equally and eight boys shared three large pizzas equally. Who ate more pizza, a boy or a girl?

F. Luis mixed 6 ounces of cherry syrup with 53 ounces of water to make a cherry-flavored drink. Martin mixed 5 ounces of the same cherry syrup with 42 ounces of water. Who made the drink with the stronger cherry flavor? Give mathematical evidence to justify your answer.

(From SREB publication *Getting Students Ready for Algebra I: What Middle Grades Students Need to Know and Be Able to Do*)

G. A certain machine produces 300 nails per minute. At this rate, how long will it take the machine to produce enough nails to fill 5 boxes of nails if each box will contain 250 nails?

(From SREB publication *Getting Students Ready for Algebra I: What Middle Grades Students Need to Know and Be Able to Do*)

H. A calculator sells for \$9.99 in a certain state. The purchase price including tax is \$10.69. To the nearest whole percent, what is the sales tax in the state?

(Adapted from SREB publication *Getting Students Ready for Algebra I: What Middle Grades Students Need to Know and Be Able to Do*)

I. Jon and Amie each purchased a pair of shoes during the annual sale at the Shoe Factory. All shoes were priced at 40% off the original price. If Jon paid \$35 for his shoes, what was the original price? If Amie bought a pair of shoes originally priced at \$79, what was the sale price?

J. Laura is a realtor for a local real estate company and receives a commission of 4.5% on the selling price of the homes she sells. The selling prices of three homes she sold during the month of June were \$98,500; \$155,900; and \$225,000. What was the commission she received for the month of June?

K. In the phrase “*number sense*”, what is the ratio of vowels to consonants?

L. Is the percent of decrease from 80 to 50 the same as the percent of increase from 50 to 80? Why or why not?

M. A new home was built in 1990. In 1995, the home was appraised and its value had increased 15%. In 2000, the home was again appraised and its value had increased 10% over the 1995 amount. If a 5% increase in value occurs in the next 5 years, what is the net increase in value based on the value of the home in 1990? If the home sold for \$125,000 in 1990, what will be the value of the home in 2005?

N. A sporting goods store purchases snowboards, skis, and sleds for the wholesale prices listed in the chart. These are the prices paid by the sporting goods store to the various distributors. Based on the indicated markup given in the chart, find the retail price for each item.

Item	Wholesale Price	Markup
Snowboards	\$78	125%
Sleds	\$54	110%
Skis	\$189	105%

O. You have a 15% discount coupon for the most popular shoe store in the mall. You would like to use your coupon to purchase the newest athletic shoes available. The store advertises the price of these shoes at \$179. Determine what you will pay for the shoes including 7% tax.

P. Mr. Drye and Ms. Little gave the same test to the 7th grade history classes. In Mr. Drye's class, 20 out of 25 students passed the test, and in Ms. Little's class, 24 out of 30 students passed the test. One of Ms. Little's students heard the results of the test and claimed that the classes did equally well. Is the student right? Explain.

Q. Mr. Johnson's chorus has 36 members. If the ratio of girls to boys is 4:5, how many girls are in the choir? What percent of the choir is boys?