

Indicators

Objective:

1.03 Develop flexibility in solving problems by selecting strategies and using mental computation, estimation, calculators or computers, and paper and pencil.

Vocabulary and Resources		
percent	commission	make a table/chart/graph
percent of change	discount	make a diagram/picture
percent of increase	regular price	make an organized list
percent of decrease	sales price	work backwards
mark-up	interest	find a pattern
selling price	circle graphs	work a simpler problem
sales tax	guess and test	extraneous information

A. The Allowance Mystery

<u>Year</u>	<u>Total Year Allowance</u>	<u>Total Family Income</u>
1992	\$250	\$25,000
1993	\$260	\$26,000

The table above shows Ben's total yearly allowance and his family's total income for the year. Between 1992 and 1993 the cost of living increased by 8%. Ben's family was discussing the change in his allowance between 1992 and 1993.

- Ben's older sister insisted that Ben's allowance had increased.
- Ben complained that the allowance had gone down.
- Ben's mother maintained that there had been no change in the allowance system.

Explain how each person's opinion could be valid.

B. Sally bought a pair of \$59.00 jeans at 10% off. Susan found the same pair of \$59.00 jeans on sale for \$54.00. Joanie bought two pair of the same \$59.00 jeans for \$105.00. How much did Sally spend on her pair of jeans? What is the percent of decrease on the pair of jeans that Susan bought? Calculate the percent of decrease for one pair of Joanie's jeans using \$59.00 as the original price. What is the average percent of decrease?

C. You have been asked to organize an event to raise money for your school. You decide you want to sponsor a teacher dunking booth at a school-wide celebration. You randomly survey 60 students as to the maximum amount they would be willing to pay for one ticket. Here are your survey results:

SURVEY RESULTS

Ticket Price	# of Positive Responses
\$0.50	3
\$1.00	22
\$1.50	18
\$2.00	7
Would not purchase ticket	10

***Due to student interest in dunking teachers, only one ticket per student may be purchased.**

Determine the ticket price that would generate the most income. Explain why you chose that price. Use this information to predict the total amount of income if 500 students attend the celebration.

D. Estimate how long it would take you to walk five miles. Explain the procedure you used and provide all your calculations.

E. A principal wants to send representatives of all the school's performing arts clubs and the journalism club to a Broadway musical on tour in a nearby city. Because she wants to be fair, she wants to make sure that the numbers of students from each group who attend are exactly proportional to the numbers of students in each group. Based on the number of students in each group listed below, and assuming that a student can belong to only one group, is this possible? Why or why not?

Group	Number of students
Chorus	42
Dance Club	15
Drama Club	21
Journalism Club	12
Orchestra	47
Wind Ensemble	51

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

F. An advertising agent for a shoe company placed ads in several different newspapers throughout the state. Each newspaper charges \$18 per column inch. The ads were $4\frac{1}{2}$ column inches, $3\frac{3}{4}$ column inches, $3\frac{1}{2}$ column inches, $2\frac{1}{4}$ column inches, and 4 column inches. What is the total cost of these ads?

G. A cabinet 30 inches high must have a 4-inch thick base and $1\frac{1}{2}$ - inch thick top. Four equal sized drawers must fit in the remaining space with $\frac{3}{4}$ inch between each drawer. What is the height of each drawer?

H. Gregory wants to fence in his rectangular yard that measures $10\frac{1}{2}$ yards by $20\frac{3}{4}$ yards. If fence material cost \$2.25 per yard, how much will Gregory spend to fence in his entire yard?

I. From a bolt of cloth measuring $2\frac{2}{3}$ yards, Tomasena cut a $6\frac{3}{4}$ yard piece and a 11.5 yard piece. How much material is left on the bolt?

J. Help! I only have \$6.21 left after shopping. I think I should have more. I purchased 3 pairs of earrings for \$4.95 each, two necklaces for \$7.95 each, and a new purse for \$5.50. Sales tax would be 7% on these purchases. I began shopping with \$50. Do I have the correct change?