Chapter 2: Take–Home Exam
Math 100

Name_____ Date_____

This exam is due 10/29/03. Two percentage points will be deducted for each day it is late. You may get assistance with the test, but remember that tutors cannot help you with the actual problems from the test. They can only show you similar examples.

To conserve paper, limited space is given for each question. Please use the back of the page or attach scratch paper to show all your work.

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Simplify the expression by combining like terms.

1) $8z + 4 - 2z + 8$

Simplify the expression and combine like terms.

2) $-(8z - 9w + 9y)$

3) $(12z + 7) - (2z - 6)$

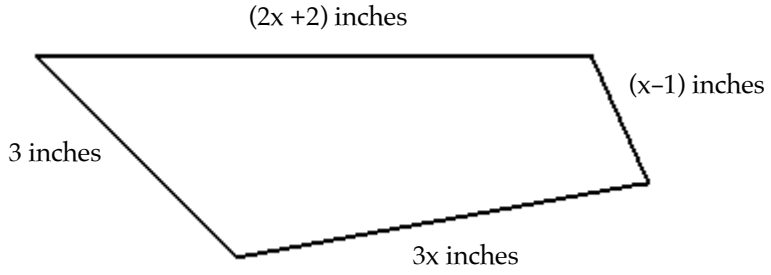
Write the phrase as an algebraic expression, using x for any unknown number. Simplify if possible.

4) Subtract $2x - 6$ from $6x + 8$

5) The difference of eleven and a number, divided by two.

Solve the problem by combining like terms.

6) Given the following quadrilateral, express the perimeter, or total distance around the figure, as an algebraic expression containing the variable x.



Solve the equation.

7) $\frac{1}{5}f - 3 = 1$

Write the quantity in the problem as an algebraic expression, simplified if necessary.

8) The sum of the angles of a triangle is 180°. If one angle of a triangle measures x° and a second angle measures (2x + 23)°, express the measure of the third angle in terms of x.

Solve the equation.

9) $6x - (5x - 1) = 2$

10) $5(y + 6) = 6(y - 2)$

11) $-2x + 4(-2x - 5) = -21 - 9x$

12) $\frac{2x}{5} - \frac{x}{3} = 5$

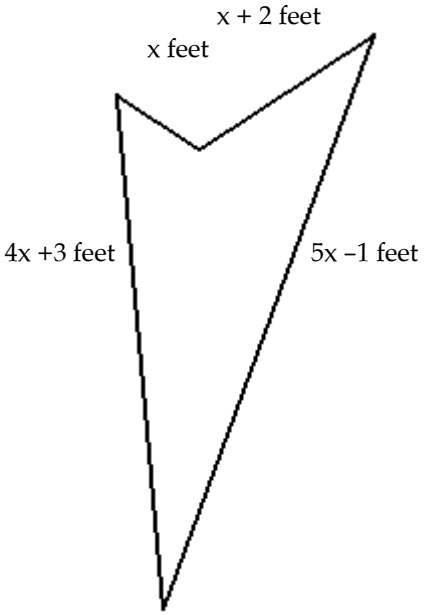
13) $\frac{b}{7} - 10 = -8$

14) $3(x + 4) - (3x + 12) = 0$

15) $\frac{1}{2}(4x - 6) = 6\left(\frac{1}{3}x - \frac{1}{2}\right) + 8$

Solve the problem.

16) The perimeter, or sum of the lengths of the sides, of the following figure is 70 feet. Find the length of each side.



17) A storage room holds both algebra and history text books. Let x represent the number of algebra books in the storage room. Suppose that "the number of algebra books" minus 39 is the same as twice "the number of history books" plus 13. If the storage room has 81 history books, how many algebra books does it have?

Write the sentence as an equation, using x for the unknown number. Then solve the equation.

18) When 5 times a number is subtracted from 7 times the number, the result is 14. Find the number.

Solve the problem.

19) Two angles are complementary if their sum is 90°. If the measure of the first angle is x°, and the measure of the second angle is (3x – 2)°, find the measure of each angle.

20) There are 14 more sophomores than juniors in an 8 AM algebra class. If there are 84 students in this class, find the number of sophomores and the number of juniors in the class.

Solve the formula for the specified variable.

21) $V = \frac{1}{3}Bh$ for h

Substitute the given values into the formula and solve for the unknown variable.

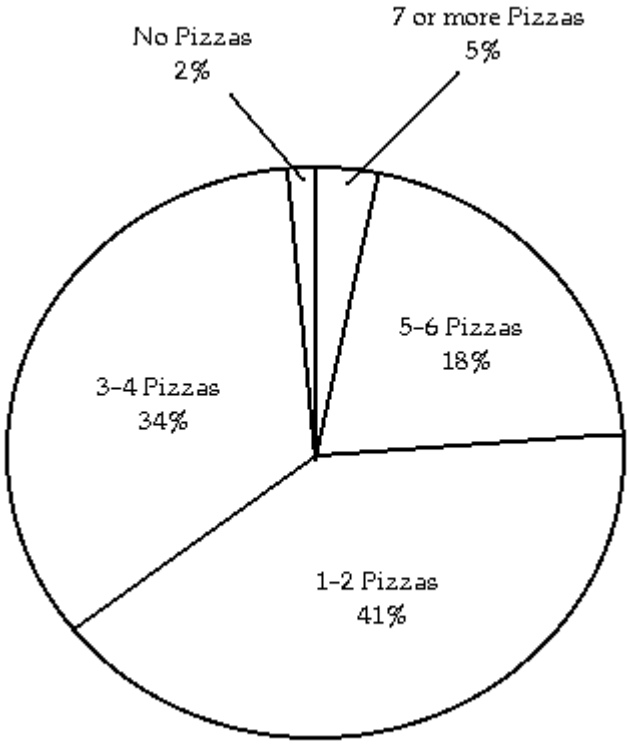
22) $A = \frac{1}{2}bh$; $b = 4$, $h = 10$

23) $A = \frac{1}{2}(b + B)h$; $A = 120$, $b = 14$, $B = 16$

Solve the problem using a known formula.

24) You have a cylindrical cooking pot whose radius is 6 inches and whose height is 7 inches. How many full cans of soup will fit into the pot if each can has holds 20 cubic inches of soup? (Use 3.14 as an approximation for π.)

The pie chart below shows the number of pizzas consumed by college students in a typical month. Use the chart to answer the question.



25) What percent of college students consume 4 pizzas or less in a typical month?

Solve. Round to the nearest hundredth, if necessary.

26) 16 is 4% of what number?

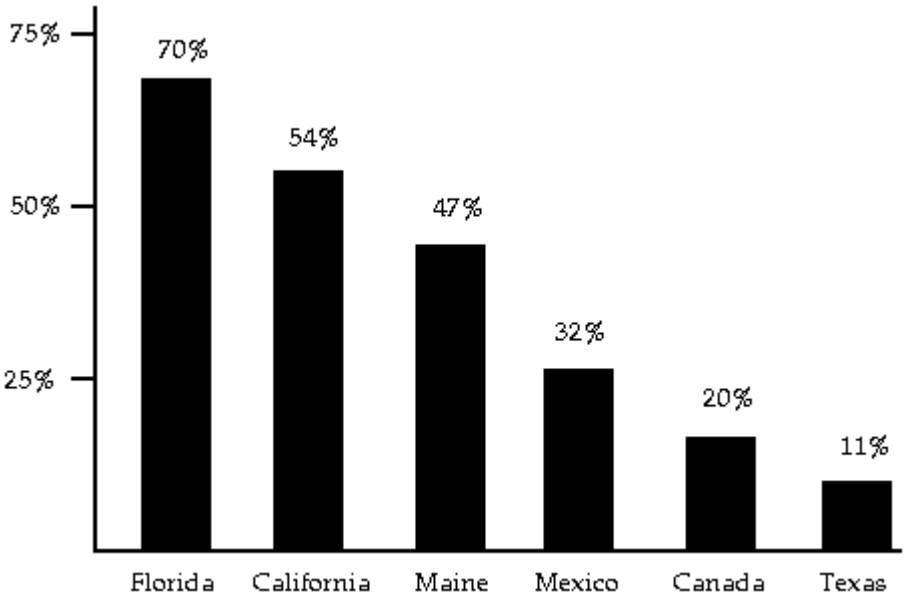
Solve the problem.

27) Jeans are on sale at the local department store for 25% off. If the jeans originally cost $56, find the sale price. (Round to the nearest cent, if necessary.)

28) Due to a lack of funding, the number of students enrolled at City College went from 6000 last year to 5000 this year. Find the percent decrease in enrollment. (Round to the nearest tenth of a percent, if necessary.)

29) Of the 150 students in an algebra class, 9 of them received an F on the mid–term exam. What percent of the algebra students received an F on the exam? (Round to the nearest tenth of a percent, if necessary.)

The graph below shows the percent of people in a survey who would consider various locations as possible vacation spots. Use the graph to answer the question.



30) What percent of those surveyed would consider California as a possible vacation spot?