

Name: \_\_\_\_\_ Period: \_\_\_\_\_ Date: \_\_\_\_\_

## **Activity: Writing Equations**

1. Karen works 40 hours as a waitress. She earns \$2.75 per hour plus 12% of the customers' purchases for her tips. If  $x$  represents the customers' purchases and  $y$  represents Karen's weekly earnings, write an equation to this relationship.
  
  
  
  
  
  
  
  
  
  
2. Mr. Reynolds sells real estate. He sold a house last week and earned \$2400 in commission. If he earns a 6% commission on each house he sells, what was the selling price of the house?
  
  
  
  
  
  
  
  
  
  
3. Kevin knows the length of each leg of an isosceles triangle is 3 less than twice the length of the base of the triangle. If the perimeter of the triangle is 24 inches, what is the length of the base?

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## Activity: Equations and Inequalities

1. In a sophomore class, 30% of students participate in athletics. Of the remaining students, 25% participate in other extracurricular school activities. If there are 800 students in the sophomore class, how many of these students participate in other extracurricular school activities?
2. Joel has a gift certificate for \$150 to spend at a clothing store. The store is having a sale with everything discounted 25%. The sales tax rate is 7.25%. Write an inequality to represent the total cost of the regular-priced items Joel can buy. Then solve.
3. A farmer has a 55-gallon barrel from which fertilizer can be dispensed at a rate of 0.5 gallons per minute. Write an equation to describe the relationship between  $f$ , the amount of fertilizer remaining in the barrel in gallons, and  $t$ , the time in minutes. At this rate, how many minutes will it take to empty a full barrel?
4. Diane's investment advisor predicts earnings from a particular investment plan using the equation  $d = 0.12i - 250$ . If Diane makes an investment,  $i$ , of between \$8000 and \$10000 in the plan, which of the following is a reasonable dividend,  $d$ , she can expect from her investment?
  - A \$250
  - B \$830
  - C \$1080
  - D \$1200

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## **Evaluate: Exploring Equations and Inequalities**

- 1** Marcus went to a diner for lunch. The price of the meal was \$6.45, tax included. If Marcus tipped the waitress 15%, what would be his change if he paid with a \$10 bill?

A \$2.58  
B \$3.01  
C \$3.40  
D \$7.42

- 2** Janelle's rent on her apartment increased from \$450 in 2003 to \$545 in 2005. If her rent continues to increase at this percentage rate, what is a reasonable projection of her rent in 2007?

A \$660  
B \$735  
C \$800  
D \$925

- 3** A local taco stand sells beef tacos for \$1.25 each and burritos for \$1.75 each. Which inequality represents the number of tacos,  $t$ , and burritos,  $b$ , that can be purchased for \$8 or less?

A  $1.25t + 1.75b < 8$   
B  $1.75t + 1.25b \leq 8$   
C  $1.25t + 1.75b \leq 8$   
D  $1.75t + 1.25b < 8$

- 4** Carol and Joshua like to collect movie posters. Carol has 2 less than three times the posters Joshua has. Together they have 18 posters. How many posters does Joshua have?

A 5  
B 6  
C 12  
D 13