

NAME \_\_\_\_\_

DATE \_\_\_\_\_

# Module Test A

## Module 4

Write an equation to represent each sentence or situation. Any variable may be used in question numbers 1, 2, 5, and 6.

1. The product of a number and seven, decreased by one, is twenty-seven.

$$\underline{7n - 1 = 27}$$

3. The cost of  $n$  lamps is \$420. The cost of one lamp is \$84.

$$\underline{84n = 420 \text{ or } \frac{420}{n} = 84}$$

5. Jerrold has four times as many game cartridges as Arnold. They have 30 game cartridges total.

$$\underline{g + 4g = 30}$$

7. In a certain right triangle, the base is equal to half the height. The area of the triangle is 36 square inches. (Hint: the formula for the area of a triangle is  $A = \frac{1}{2}bh$ .)

$$\underline{\frac{1}{2}\left(\frac{1}{2}h\right)h = 36}$$

2. Negative four times the sum of a number and twelve is sixteen.

$$\underline{-4(x + 12) = 16}$$

4. Nadine is  $b$  years old. Her mother is 26 years older. The sum of their ages is 68.

$$\underline{b + (b + 26) = 68}$$

6. Six less than twice a number is the same as one more than three times the number.

$$\underline{2x - 6 = 3x + 1}$$

8. A test contained 25 questions. Hank got  $c$  questions correct and seven questions wrong.

$$\underline{c + 7 = 25 \text{ or } 25 - c = 7}$$

Solve.

9. Evelyn worked 17 hours at an hourly rate of  $d$  dollars per hour. What is  $d$  if she earned \$114.75?

$$\underline{\$6.75}$$

11. The sum of three consecutive integers is 54. What are the three integers?

$$\underline{17, 18, 19}$$

13. A real estate agent earns a commission of 3% of the sale price of a home. What is the sale price of a home if her commission is \$4,800?

$$\underline{\$160,000}$$

10. A satellite TV service charges \$41.99 per month for basic service, plus \$8.99 for each pay-per-view movie. How many movies were purchased if a total monthly bill was \$95.93?

$$\underline{6}$$

12. The sum of two consecutive even integers is  $-30$ . What are the two integers?

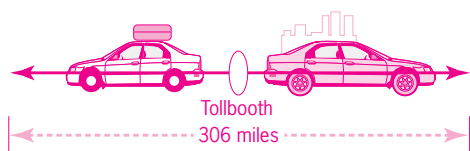
$$\underline{-16, -14}$$

14. Sheryl paid \$24 for a new basketball. The store's markup is 20%. What was the wholesale cost of the basketball?

$$\underline{\$20}$$

15. A shopper bought a new keyboard for \$48.60, which included an 8% sales tax. What was the price of the keyboard, not including tax?  
**\$45**
16. In an isosceles triangle, the base is 5 cm shorter than each leg. The perimeter of the triangle is 16 cm. What is the length of the base?  
**2 cm**
17. In a triangle, the first side is 3 in. shorter than the second side. The third side is 1 in. longer than the second side. What is the length of the longest side if the perimeter is 25 in.?  
**10 in.**
18. Angle  $B$  has a measure  $30^\circ$  more than twice that of its complement. Find the measure of angle  $B$ .  
 **$70^\circ$**
19. In an isosceles triangle, the measure of the vertex angle is  $30^\circ$  less than the measure of each base angle. Find the measure of each base angle.  
 **$70^\circ$**
20. Silas has a collection of 32 coins, consisting of dimes and quarters. He has eight fewer dimes than quarters. How many of each coin does he have if the total value of the coins is \$6.20?  
**20 quarters; 12 dimes**
21. Green Grass Seed Mix contains 30% rye grass. How much Green Grass Seed Mix should be mixed with 6 lb of pure rye grass seed to make a mixture that is 72% rye grass?  
**4 lb**
22. At 3 P.M., two runners start at opposite ends of a 24-mile long trail. One runs at a constant rate of 5.5 mph, the other at a constant rate of 4.5 mph. At what time will the runners meet?  
**5:24 P.M.**
23. Two cars leave a toll booth at the same time, going in opposite directions. Car A travels at a constant rate 10 mph faster than car B. What is the rate of each car if they are 306 miles apart after 3 hours?

A. Draw a picture that can help you solve this problem.



B. Write an equation to solve this problem.  **$3x + 3(x + 10) = 306$**

C. Identify what the variable stands for.  **$x$  is the rate of car B.**

D. Solve the problem. Be sure to answer the question, and then show how to check your answer.

$$3x + 3(x + 10) = 306$$

$$3x + 3x + 30 = 306$$

$$6x + 30 = 306$$

$$6x = 276$$

$$x = 46$$

$$x + 10 = 56$$

**The rate of car A is 56 mph.**

**The rate of car B is 46 mph.**

**Check:**

$$\text{distance driven by car A} = 56(3) = 168 \text{ mi}$$

+

$$\text{distance driven by car B} = 46(3) = 138 \text{ mi}$$

=

$$\text{total distance apart} = 306 \text{ mi}$$