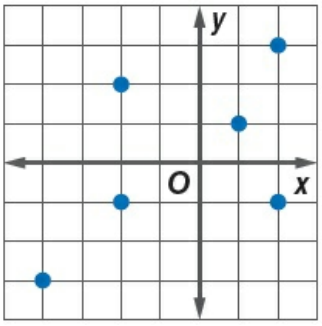
Name:_____ Class:_____ Date:_____

Chapter 0 Posttest

State the domain and range of the relation. Then determine whether the relation is a function. Write *yes* or *no*.

1. {(4, 5), (5, –1), (0, 12), (0, –2), (7, 9)}

2.



Name the quadrant in which the point is located.

3. (–3, 7)

4. (10, –11)

5. (–15, –3)

Find the product.

6. $(4n - 3)(2n + 2)$

7. $(5p - 1)(6p - 10)$

8. $(7x + 4)(7x + 4)$

9. $(3k - 2)(6k + 9)$

10. **GEOMETRY** The height of a rectangle is 3 millimeters less than twice the width.

a. Write an expression for each measure.

b. Write a polynomial expression for the area of the rectangle.

Factor the polynomial.

11. $4x^2 + 4xy + y^2$

12. $25a^2 - 20a + 4$

13. $4a^2 + 16ab + 16b^2$

14. $81t^2 - 36$

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15. **STUDENT COUNCIL** A student council has 6 seniors, 5 juniors, and 1 sophomore as members. How many ways can a 3-member committee be formed that includes one member from each class?

Determine whether the situation involves *permutations* or *combinations*. Then solve.

16. How many ways are there to select one competitor and one alternate out of 8 students?

17. How many ways are there to form a team of 7 athletes from a group of 15 who try out?

RESTAURANT There are 24 male and 36 female patrons in a restaurant. Of the 11 patrons under 10 years old, 6 are male. Of the 14 patrons over 55 years old, 9 are female. A patron is selected at random. Determine whether the events are *mutually exclusive* or *not mutually exclusive*. Then find the probability.

18. *P*(female or under 10)

19. *P*(under 10 or over 55)

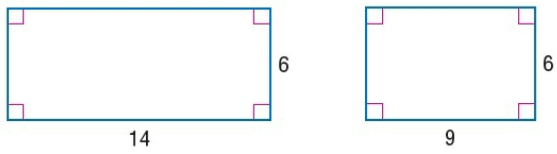
Determine whether the events are *independent* or *dependent*. Then find the probability.

20. Slips of paper numbered 1 through 10 are placed into a bag. What is the probability of drawing the number 10 three times in a row if a slip is drawn at random and then replaced?

21. Two students are selected at random from a class that consists of 13 males and 7 females. What is the probability that both students are female?

22. **TESTING** Of the students who took both the Mid-Chapter 4 Quiz and the Chapter 4 Test, 56% passed the quiz and 48% passed both the quiz and the test. If a student passed the quiz, find the probability that he or she also passed the test.

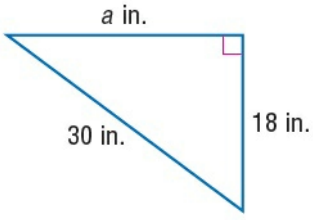
23. Determine whether the rectangles are *similar*, *congruent*, or *neither*.



24. **COMPUTERS** A computer image of a painting 320 pixels wide by 240 pixels high. If the actual painting is 42 inches wide, how high is it?

Find the missing measure. Round to the nearest tenth, if necessary.

25.



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26. $a = 33$ cm, $b = ?$ cm, $c = 45$ cm

The lengths of three sides of a triangle are given. Determine whether the triangle is a right triangle.

27. 6 in., 8 in., 12 in.

28. 30 m, 34 m, 16 m

Find the mean, median, mode, range, and standard deviation of each data set. Then identify any outliers.

29. number of students present at 8 student council meetings: 23, 45, 16, 75, 32, 35, 28, 35

30. number of students present at 8 student council meetings: 23, 45, 16, 75, 32, 35, 28, 35