Algebra 2 Summer Work

Indicate the answer choice that best completes the statement or answers the question.

1. Find the domain of the relation: $\{(2, -6), (4, -5), (-3, -7), (6, 3)\}$

    a. $\{-7, 2, 3, 4\}$ b. $\{-5, 3, 4, 6\}$
    c. $\{-3, 2, 4, 6\}$ d. $\{-7, -6, -5, 3\}$

2. Name the quadrant in which point $(-4, 7)$ is located.
    a. II   b. IV
    c. I   d. III

Find the product.
3. $(b + 3)(b + 9)$
    a. $b^2 + 12b + 27$ b. $12b + 27$
    c. $27b + 12$ d. $b^2 + 27b + 12$

4. $(5p + 7)(p - 4)$
    a. $5p^2 + 27p - 28$ b. $-20p + 7p$
    c. $5p^2 - 28p$ d. $5p^2 - 13p - 28$

Factor the polynomial.
5. $2b^2 + 8b$
    a. $2(b + 4)$ b. $4b(b + 2)$
    c. $2b(b + 4)$ d. $(b + 2)(b + 4)$

6. $x^2 + 12x + 35$
    a. $(x + 5)(x + 7)$ b. $(x + 12)(x + 35)$
    c. $x(x + 12)$ d. $5x(x + 7)$

7. A factory manufactures plastic bottles of 4 different sizes, 3 different colors, and 2 different shapes. How many different combinations are possible?

8. A pizza corner offers a choice of 2 types of pizza bases and 8 types of pizza toppings. How many different single-topping pizzas can a customer order?

9. A garment company has been contracted to make uniforms for players of a football tournament. There are 12 different colors and 12 designs selected for the uniforms. How many combinations of colors and designs can be made for the uniforms of different teams?

10. In how many orders can 7 chapters be arranged in the index of a textbook if the chapter on probability is to be listed in the middle of the series of chapters?

11. A coin jar contains 8 pennies, 7 nickels, 7 dimes, and 5 quarters. If a coin is chosen at random, what is the probability of choosing a penny?

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12. A letter is selected at random from the word MATHEMATICS. Find $P(S)$.

13. The table shows how many males and females play on school sports teams at Mason High School. Find the probability that a student does not play sports given that the student is female.

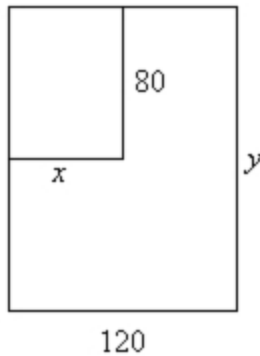| Gender	Play Sports	Do not Play Sports
male	73	207
female	84	211

14. The table shows how many players won a prize at the dart throw game and duck pond game during a day at a festival. Find the probability that a player won a prize given that he or she played the dart throw game.

Game	Prize	No Prize
Dart Throw	54	221
Duck Pond	33	147

Indicate the answer choice that best completes the statement or answers the question.

   Find correct values for x and y.
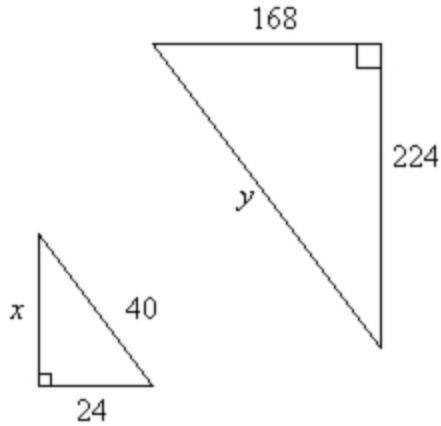15. The pair of rectangles are similar.

a. $x = 60; y = 160$ b. $x = 40; y = 160$
c. $x = 60; y = 240$ d. $x = 40; y = 180$
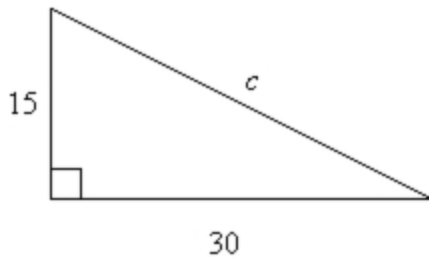
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16. The pair of right triangles are similar.

168

224

y

x 40

24

a. $x = 32; y = 280$ b. $x = 16; y = 280$
c. $x = 64; y = 392$ d. $x = 64; y = 336$

17. Find the value of c. Round to the nearest tenth.

15

c

30

a. 45.6   b. 39
c. 30   d. 33.5

18. Find the missing measure of the right triangle. Round to the nearest tenth.

$a = 8, b = ?, c = 28$
a. 36.8   b. 21.9
c. 26.8   d. 31.1

19. Find the median of the data set. Round to the nearest tenth if necessary.

6, 27, 16, 23, 8, 7, 26, 30

20. Find the mode of the data set below.

36, 27, 35, 25, 34, 21, 28, 27

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21. Find the range of the data set below.

    106, 57, 112, 50, 31, 40, 54, 62, 35, 35, 40

22. Find the minimum, lower quartile, median, upper quartile, and maximum of the data set below.

    35, 27, 35, 31, 25, 51, 50, 55, 58, 51, 51, 33, 45

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

23. $\left\{(-1, 6), (1, -5), (-2, -4), (-1, 3)\right\}$

    Find the product.

24. $(c - 5)(c + 5)$

25. $\left(4f - 15\right)\left(f + 2\right)$

26. $\left(3g + 4\right)\left(7g - 9\right)$

27. Tori's patio is rectangular. The width is 4 less than a number and the length is 6 more than a number.

    Factor the polynomial.

28. $r^2 - 5r - 14$

29. $c^2 - 81$

30. $g^2 + 6g + 9$

31. $10g^2 + 9g - 91$

32. Jerry had a photo store enlarge a photograph to make a poster. The photograph is 5 inches wide and 7 inches long. The poster is 25 inches wide. How long is the poster?

33. A movie stuntman designed a car jump for an action movie. The take-off ramp and the landing ramp were in the shape of similar right triangles. The take-off ramp was 12 feet high and 30 feet long. The landing ramp was 20 feet long. How high was the landing ramp?

34. The quiz scores in Miss Newman's math class are shown below. Find the mean, median, and mode of the data.

    9, 5, 8, 7, 9, 10, 8, 6, 5, 8, 10, 8

35. Explain how you know if a relation is a function.