

NAME _____

DATE _____

Module Test **A**

Module 13

Fill in the blanks with the terms or numbers to best complete each statement.

- Solutions to equations are also called _____.
- The Zero Product Property states that if $ab = 0$, then _____ or _____.
- A _____ is the result of squaring a binomial.
- Complete the square. $x^2 - 16x + \underline{\hspace{2cm}}$
- When $x^2 - 5x + 10 = 2$ is written in standard form, $a = \underline{\hspace{2cm}}$,
 $b = \underline{\hspace{2cm}}$, and $c = \underline{\hspace{2cm}}$.

Choose the correct response for each of the following:

- Which of the following is a quadratic equation?

a. $c^2(c + 1) = 4$	b. $-5m(m + 3) = -30$
c. $6^2p + 10p - 1 = 0$	d. $x^2 + 8x - 12 = x(x - 4)$
- Solve: $-5a^2 = 80$.

a. \emptyset	b. $\{-4\}$	c. $\{4\}$	d. $\{4, -4\}$
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- Solve: $x^2 - 4x - 21 = 0$.

a. $\{-3\}$	b. $\{7\}$	c. $\{-7, 3\}$	d. $\{7, -3\}$
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- Which is the discriminant of $x^2 + 2x - 1 = 0$?

a. 0	b. 2	c. 4	d. 8
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- The height, in feet, of a ball tossed in the air is given by $h = -16t^2 + 10t$, where t is the time in seconds. What is the initial height of the ball?

a. 16 ft	b. -6 ft	c. 0 ft	d. 10 ft
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Are the following statements true or false?

11. $(k + 4)^2 = 16$ is a linear equation. _____
12. The solution set of $4x^2 = 15$ is $\left\{\frac{\sqrt{15}}{2}, -\frac{\sqrt{15}}{2}\right\}$. _____
13. $x^2 - 30x + 225$ is a perfect square trinomial. _____
14. $x^2 + 4x + 4$ factors into $(x - 2)^2$. _____

Solve.

15. $-2(x + 3)^2 + 5 = -67$ _____
16. $x^2 + 6x = 16$ _____
17. $x^2 - 5x + 1 = 8$ _____
18. $2d^2 - 4 = -5d$ _____
19. The area of a rectangular floor is 112 square feet. The length is nine feet more than the width. Find the dimensions of the floor.
- _____

20. John tosses a ball into the air from a deck that is 40 feet above the ground. The equation $h = -16t^2 + 12t + 40$ models the height of the ball, where h is the ball's height above the ground and t is the time in seconds since the ball was thrown. At what time will the ball be 10 feet above the ground? Round the answer to the nearest hundredth of a second.
- _____

Answer the following questions with complete sentences.

21. Explain how to solve a quadratic equation by factoring.

22. State the discriminant of a quadratic equation. Explain how it is used to determine whether the equation has zero, one, or two real number solutions.
