Name_____

Teacher_____ Period____

Intermediate Algebra

- Target 5.3 Retest Packet © 2014 Kuta Software LLC. All rights reserved.
- 1) What does the discriminant tell you about a quadratic equation?
- 2) Describe the discriminant of a quadratic equation that has no real solutions and 2 imaginary solutions. Show this algebraically and graphically.
- 3) Describe the discriminant of a quadratic equation that has one real solution. Show this algebraically and graphically.



4) Describe the discriminant of a quadratic equation that has two real solutions. Show this algebraically and graphically.



Find the discriminant of each quadratic equation then state the number and type of solutions.

5)
$$b^2 - 6b + 9 = 0$$

6) $-4x^2 + 10x + 6 = 0$

7)
$$-9x^2 + 3x - 10 = 0$$

8) $9k^2 + 6k + 1 = 0$

9)
$$8n^2 - 8n + 5 = 0$$
 10) $-9n^2 - 3n = 0$

11)
$$-10a^2 = 3 + 10a$$
 12) $-5n^2 - 10n = 9$

13)
$$-2v^2 - 2 = 4v$$
 14) $-10p^2 + 8 = 2p$

15) $10x^2 - 5x + 5 = 1$ 16) $n^2 - 5n = 4n - 5n^2$

17) Kim is trying to jump and grab the basketball rim. Her hand's height can be modeled by the function $h(t) = -3t^2 + 6t + 7$. Will she touch the 10 foot rim?

18) Jared is trying to kick a ball over a tree that is 50 feet tall. The height of the ball can be modeled by the function $h(t) = -2t^2 + 20t + 1$. Does the ball make it over the tree?

19) Elijah is shooting a basketball over the back side of the backboard and into the hoop. The height of the ball can be modeled with the equation $h(t) = -10t^2 + 19t + 4$. If the backboard is 14 feet tall, will the ball make it over?

20) Bella is trying to shoot a spitball to stick to a ceiling that is 20 feet high. The spitball's height can be modeled by $h(t) = -5t^2 + 18t + 4$. Will the spitball make it to the ceiling?

21) Bear, a chocolate lab, is trying to jump up onto a couch that is 2.45 feet high. Bear's height can be modeled by the function $h(t) = -5t^2 + 7t$. Will he make it up onto the couch?

22) Marin is 4 years old and tries to shoot a basket with a basketball. The basketball's height can be modeled by the function $h(t) = -6t^2 + 11t + 2$. Will the ball make it all the way to the 10 foot hoop?

Answers to Target 5.3 Retest Packet

- 1) How many and what kind of zeros it has.
- 2) The discriminant will be negative when $b^2 4ac$ is evaluated. An example of what the graph could look like is:



3) The discriminant will be zero when $b^2 - 4ac$ is evaluated. An example of what the graph could look like is:



4) The discriminant will be positive when $b^2 - 4ac$ is evaluated. An example of what the graph could look like is:



- 5) 0; one real solution 6) 196; two real solutions
- 7) -351; two imaginary solutions
- 8) 0; one real solution 9) -96; two imaginary solutions 10) 9; two real solutions
- 11) -20; two imaginary solutions 12) -80; two imaginary solutions 13) 0; one real solution
- 14) 324; two real solutions 15) -135; two imaginary solutions 16) 81; two real solutions
- 17) D = 0, therefore, Kim's hand reaches exactly 10 feet and touches the rim.
- 18) D = 8, therefore, the ball is 50 feet high twice (2 real solutions) and goes higher in between those times.
- 19) D = -39, therefore, the ball does not reach 14 feet high (0 real solutions, 2 imaginary solutions).
- 20) D = 4, therefore, the spitball does reach 20 feet twice (2 real solutions).
- 21) D = 0, therefore, Bear reaches exactly 2.45 feet (1 real solutions) and barely makes it onto the couch.
- 22) D = -71, therefore, the ball will not reach 10 feet (0 real solutions, 2 imaginary solutions).