Intermediate Algebra Name_____

Target 5.1 Retest Packet

Teacher_____ Period____

Determine the best method to solve the following quadratic equations. State either SQUARE ROOTS, FACTORING, OR QUADRATIC FORMULA. Give a reason for the method you chose.

1) $5x^2 + 2x = -15$

Reason: _____

Why?

2) $-2(x + 1)^2 + 7 = -1$

Reason: _____

Why?

3) $x^2 + 3x = 10$

Reason: _____

Why?

4) $x^2 - 3x + 1 = 0$

Reason: _____

Why?

5) $x^2 = 10x - 16$

Reason: _____

Why?

6) $(x - 3)^2 - 6 = 10$

Reason: _____

Why?

7) $-3x^2 + 7 = -5$

Reason: _____

Why?

8) $2x^2 - 6x + 10 = 0$

Reason: _____

Why?

Find the value that completes the square and then rewrite as a perfect square.

9) $y = x^2 - 16x + \_\_$

10) $y = x^2 - 6x + \_\_$

11) $y = x^2 - 20x + \_\_$

12) $y = x^2 - 10x + \_\_$

Solve 13 - 17 using the COMPLETE THE SQUARE method.

13) $x^2 + 2x + 82 = 0$

14) $v^2 - 18v + 90 = 0$

15) $x^2 - 4x - 46 = 0$

16) $b^2 + 4b + 20 = 0$

17) $b^2 - 10b + 5 = 0$

18) What makes numbers 13 - 17 easiest to do using the COMPLETE THE SQUARE method?

Solve 19 - 23 using the SQUARE ROOT method.

19) $(x-3)^2-5=11$

20) $5x^2-19=81$

21) $3x^2+12=-63$

22) $-2(x+5)^2-1=49$

23) $-2x^2+96=0$

24) What makes numbers 19 - 23 easiest to do using the SQUARE ROOT method?

Solve 25 - 29 using the FACTOR method.

25) $x^2=12-x$

26) $b^2-42=b$

27) $r^2+6=5r$

28) $x^2=8+2x$

29) $n^2=12-4n$

30) What makes numbers 25 - 29 easiest to do using the FACTOR method?

Solve 31 - 35 using the QUADRATIC FORMULA method.

31) $3n^2 = -n + 80$

32) $10p^2 + 2 = -8p$

33) $5a^2 = 10a + 75$

34) $6v^2 + 2 = -8v$

35) $4p^2 + 2 = -4p$

36) What makes numbers 31 - 35 easiest to do using the QUADRATIC FORMULA method?

Solve the following problems using one of the four methods above. Show all of your work.

37) You want to frame a picture. You know that the length of the picture will be 6 more than three times the width and that the picture's area will be 72 in^2. What is the picture's width and length?

38) The height of a served volleyball is represented by the function $h(t) = -2x^2 + 4x + 6$, where $h(t)$ represents the height of the ball at time "t". When does the ball hit the ground?

39) The height of a weather balloon is represented by the function $h(t) = -16x^2 + 320x$, where $h(t)$ represents the height of the balloon at time "t". When does the balloon hit the ground?

40) Kim is trying to jump and grab the basketball rim. Her hand's height can be modeled by the function $h(t) = -3t^2 + 6t + 7$. How long is she in the air?

41) 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 $h(t) = -2t^2 + 20t + 1$. How long is the ball in the air?

42) The length of a rectangle exceeds its width by 3 inches. The area of the rectangle is 70 in^2. Find its dimensions

Answers to Target 5.1 Retest Packet

1) Quadratic Formula; The number in front of the x^2 term is not 1, making it tough to factor. Also, b is not zero, making square roots difficult.
2) Square Roots; The quadratic is already in vertex form, which makes square roots easiest.
3) Factoring; The quadratic is easy to factor. Also, b is not zero, making square roots difficult.
4) Quadratic Formula; The quadratic is impossible to factor. Also, b is not zero, making square roots difficult.
5) Factoring; The quadratic is easy to factor. Also, b is not zero, making square roots difficult.
6) Square Roots; The quadratic is already in vertex form, which makes square roots easiest.
7) Square Roots; The quadratic does not have a x^1 term, making square roots the easiest method.
8) Quadratic Formula; The number in front of the x^2 term is not 1, making it tough to factor. Also, b is not zero, making square roots difficult.

9) 64; $y = (x - 8)^2$
10) 9; $y = (x - 3)^2$
11) 100; $y = (x - 10)^2$
12) 25; $y = (x - 5)^2$
13) $\{-1 + 9i, -1 - 9i\}$
14) $\{9 + 3i, 9 - 3i\}$
15) $\{2 + 5\sqrt{2}, 2 - 5\sqrt{2}\}$
16) $\{-2 + 4i, -2 - 4i\}$
17) $\{5 + 2\sqrt{5}, 5 - 2\sqrt{5}\}$
18) The quadratic has $a = 1$, but is not factorable.
19) $x = 7, x = -1$
20) $x = 2\sqrt{5}, \quad x = -2\sqrt{5}$
21) $x = 5i, \quad x = -5i$
22) $x = -5 + 5i, \quad x = -5 - 5i$
23) $x = 4\sqrt{3}, \quad x = -4\sqrt{3}$
24) The quadratic equations are either in vertex form, or have no x^1 term, making $b = 0$.
25) $\{-4, 3\}$
26) $\{7, -6\}$
27) $\{2, 3\}$
28) $\{-2, 4\}$
29) $\{2, -6\}$
30) The quadratic equations are easily factorable.
31) $\left\{5, -\frac{16}{3}\right\}$
32) $\left\{\frac{-2 + i}{5}, \frac{-2 - i}{5}\right\}$
33) $\{5, -3\}$
34) $\left\{-\frac{1}{3}, -1\right\}$
35) $\left\{\frac{-1 + i}{2}, \frac{-1 - i}{2}\right\}$
36) The quadratic equation has an a value not equal to one, making it tough to factor, or not factorable. Also, there is an x^1 term, making square roots impossible.
37) The width is 4 inches and the length is 18 inches.
38) 3 seconds
39) 20 seconds
40) 2.83 seconds
41) 10.0 seconds
42) 7 inches wide by 10 inches long