

Name _____

Analytic Geometry

Date _____ Period _____

Ch. 16 Test Review

Solve each quadratic by factoring.

1) $x^2 - 2x - 35 = 0$

$$\{-5, 7\}$$

2) $-5x^2 + 500 = 0$

$$\{-10, 10\}$$

3) $16x^2 = 64x$

$$\{0, 4\}$$

4) $2x^2 - 3x = 35$

$$\{-\frac{7}{2}, 5\}$$

5) $49x^2 - 25 = 0$

$$\{-\frac{5}{7}, \frac{5}{7}\}$$

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

$$\{-\frac{1}{2}\}$$

Solve each quadratic by completing the square.

5) $x^2 + 8x - 16 = 0$

$$-4 \pm 4\sqrt{2}$$

6) $x^2 - 26x = 231$

$$\{-7, 33\}$$

7) $x^2 - 8 = 18x$
 $\{9 - \sqrt{89}, 9 + \sqrt{89}\}$

8) $5n^2 - 20n - 25 = 0$

$\{-1, 5\}$

Solve each quadratic by Quadratic Formula.

9) $r^2 - 8 = 0$

$\{-2\sqrt{2}, 2\sqrt{2}\}$

10) $2v^2 - 12v = 110$

$\{11, -5\}$

11) $6x^2 - 12x = 0$

$\{0, 2\}$

12) $-2x^2 = -8x - 2$

$2 \pm \sqrt{5}$

Write a quadratic function given the following zeros:

16) 0, -5

$f(x) = x^2 + 5x$

17) $-\frac{5}{2}, \frac{1}{7}$

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 $f(x) = 14x^2 + 33x - 5$

Solve using the method of your choice.

18) $4x^2 - 3x = 10$

$$\left\{-\frac{5}{4}, 2\right\}$$

19) $2x^2 - 16 = -12x$

$$\left\{3 - \sqrt{17}, -3 + \sqrt{17}\right\}$$

20) $x^2 = 13x - 22$

$$\{2, 11\}$$

21) $2(x + 4)^2 = 40$

$$\left\{-4 - 2\sqrt{5}, -4 + 2\sqrt{5}\right\}$$

22) $9x^2 - 23 = 12x$

$$\frac{2 \pm 3\sqrt{3}}{3}$$

23) $4m^2 - 8m - 81 = 0$

$$\frac{2 \pm \sqrt{85}}{2}$$

Solve the word problems.

24) A water balloon is catapulted into the air so that its height h , in meters, after t seconds is $h = -4.9t^2 + 27t + 2.4$.
When will the balloon hit the ground?

The balloon will hit the ground at 5.6 seconds.

25) You get mad at your math homework and crumple it up to throw in the trash. Your paper follows a path modelled by the following function: $f(t) = -2t^2 + 11t + 6$. How long does it take before your paper hits the bottom of the trash can?

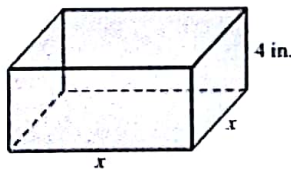
$$\left\{-\frac{1}{2}, 6\right\}$$

The paper will hit the bottom of the trash in 6 seconds.

26) The length of a rectangle is three more than twice the width. Determine the dimensions that will give a total area of 27 meters squared.

The length of the rectangle is 9m and the width is 3m.

27) The volume of a box with a square bottom and a height of 4 in. is given by $V(x) = 4x^2$, where x is the length (in inches) of the sides of the bottom of the box.



- a. If the volume of the box is 289 in.^3 , find the dimensions of the box. The length and width of the box is 8.5 in.
 b. Are there two possible answers to part (a)? Why or why not?

NO, the dimensions can only be positive.

28) The length of a rectangle is 17 cm less than four times its width. If the area is 42 centimeters squared, then what are the dimensions?

The length of the rectangle is 7cm and the width is 6cm.