

Name **Answers!**

Date _____ Period _____

DIRECTIONS: For #1-6, solve. Identify all multiple roots. Show work.

1. $n^2 + 3n - 28 = 0$

2. $m^2 + 10 = 11m$

$n = -7, 4$

$m = 1, 10$

3. $w(w - 3) = 4w$

4. $10y^2 - 19y + 7 = 0$

$w = 0, 7$

$y = \frac{1}{2}, \frac{7}{5}$

5. $m^4 - 8m^2 + 16 = 0$

6. $(x - 3)(x^2 + 6x - 7) = 0$

$m = -2 \text{ (DR)}, 2 \text{ (DR)}$

$x = -7, 1, 3$

DIRECTIONS: For #7-9, find the solution set. Show all work.

TIP: You will need to make sign graphs for these problems.

7. $y(y - 6) \leq 0$

$$0 \leq y \leq 6$$

8. $k^2 - 4k - 12 > 0$

$$k < -2 \text{ or } k > 6$$

9. $x^3 \leq x^2 + 12x$

$$x \leq -3 \text{ or } 0 \leq x \leq 4$$

DIRECTIONS: For #10-13, solve using polynomial equations. Remember to check your answers. If there are two correct answers, give both of them. Show all work.

10. A rectangle is 8 cm longer than it is wide, and its area is 153 cm^2 . Find its dimensions.

17 cm x 9 cm

11. A rectangular rug has a perimeter of 40 ft and an area of 96 ft^2 . Find the dimensions of the rug.

12 ft x 8 ft

12. The hypotenuse of a right triangle is 5 inches long. One leg is 1 inch longer than the other leg. Find the length of each leg.

3 inches & 4 inches

13. Wile E. Coyote launches a rocket upward from ground level with an initial velocity of 160 ft/sec. (Use $h = v_0t - 16t^2$)

A. How many seconds later will the rocket return to the ground?

10 seconds

B. What will be the maximum height of the rocket?

400 ft