Honors Algebra 2 Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Block:\_\_\_\_\_\_

**Solving Radical Equations**

**Solve each equation. Remember to check for extraneous solutions.**

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| **1.)**$ 15=9+\sqrt{x}$ | **2.)**$ \sqrt[4]{n+8}-6=-3$ |
| **3.)**$ \sqrt{3z+4}=5$ | **4.)**$ \sqrt{p-3}+6=5$ |
| **5.)**$ 3=\sqrt[3]{x-2}$ | **6.)**$ 2\sqrt[5]{6m-4}-1=3$ |
| **7.)**$ \sqrt{5w+3}=\sqrt{4w+5}$ | **8.)**  |
| **9.)**  | **10.)**  |
| **11.)**  | **12.)**  |
| 13) k² = 16  | 14) x² = 21 | 15) x² + 8 = 28  |
| 16) 10$x^{3}$ + 9 = 499  | 17) (p — 4)² = 16  | 18) (6x + 2) + 4 = 28 |
| 19) 10(x — 7)² = 440  | 20)8n — 6 = 306 | 21) (2x + 6) — 8 = 46 |

22. The distance, d, in miles that a person can see to the horizon can be modeled by the formula $d=\sqrt{\frac{3h}{2}} $where h is the person’s height above sea level in feet. To the nearest tenth of a mile, how far to the horizon can a person see if they are 100 feet above sea level?

23. The hull speed, s, in nautical miles per hour of a sailboat can be modeled by the formula

 $s=1.34\sqrt{l}$ where l is the length in feet of the sailboat’s waterline. Find the length of the sailboat’s waterline if it has a hull speed of 8 nautical miles per hour.

24. The average amount of apples consumed by Americans (in pounds per person) between 1980 - 2000 can be modeled by the equation $y=\sqrt{22x+275}$ where x is the number of years since 1980. In what year were about 20 pounds of apples consumed per person?

25. The velocity v, measured in meters per second, of an object can be measured in terms of its mass, m, measured in kg and Kinetic Energy, Ek, measured in Joules: $V=\sqrt{\frac{2E\_{k}}{m}}$. What is the Kinetic Energy of a bowling ball with a mass of 3 kilograms that is traveling at 6 meters per second?