Secondary Math 3
3-3 Radical Equations

Name: _____

Period: _____

Solve the equation.

1. $\sqrt{x-9}=5$

2. $\sqrt{3x}=6$

3. $\sqrt{x+3}=x+1$

4. $\sqrt{15x+10}=2x+3$

5. $(x+4)^{\frac{1}{2}}=6$

6. $(x-6)^{\frac{1}{2}}=x-2$

7. $5-\sqrt[3]{x-4}=2$

8. $2\sqrt[3]{3x+2}=\sqrt[3]{4x-9}$

9. $(x+7)^{\frac{1}{3}}=(4x)^{\frac{1}{3}}$

10. $(5x+1)^{\frac{1}{4}}=4$

11. $2(x-1)^{\frac{1}{5}}=(2x-17)^{\frac{1}{5}}$

12. The surface area *S* of a human body in square meters can be approximated by $S = \sqrt{\frac{hm}{36}}$ where *h* is height in meters and *m* is mass in kilograms. A basketball player with a height of 2.1 meters has a surface area of about $2.7m^2$. What is the player's mass?

13. For a spinning amusement park ride, the velocity, *v,* in meters per second, of a car moving around a curve with radius *r* meters is given by $v = \sqrt{ar}$ where *a* is the car's acceleration in m/s^2. If the ride has a maximum acceleration of $30m/s^2$, and the cars on the ride have a maximum velocity of $12m/s$, what is the smallest radius that any curve on the ride may have?

14. Below is a student's work in solving the equation $2\sqrt{3x+3} = 12$. What mistake did the student make? What is the correct solution?

$$2\sqrt{3x+3} = 12$$
$$2\left(\sqrt{3x+3}\right)^2 = 12^2$$
$$2(3x+3) = 144$$
$$6x+6 = 144$$
$$x = 23$$