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. $(3x-6)^{\frac{1}{2}} = x-2$

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 $S = \sqrt{\dfrac{hm}{36}}$ 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?

$$2\sqrt{3x+3} = 12$$

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

$$2(3x+3) = 144$$

$$6x + 6 = 144$$

$$x = 23$$