

Name: _____

Solving Radical Equations

Exercise 1: Solve each equation. Check your solution.

1) $\sqrt{x} = 5$

2) $\sqrt{2x} = 2$

3) $3\sqrt{x} = 1$

4) $2\sqrt{x-1} = 3$

5) $5\sqrt{x-9} = 3$

6) $4\sqrt{2x-1} = -3$

7) $\sqrt{2x-3} = 4$

8) $\sqrt{2x+4} - 5 = 6$

9) $\sqrt{3x+9} - 3 = 2$

10) $\sqrt{3x+1} = 2\sqrt{x-1}$

11) $\sqrt{x+1} = 7$

12) $6\sqrt{x+3} = 11$

13) $\sqrt{3-2x} + 5 = 11$

14) $\sqrt{x-4} = 3\sqrt{2x}$

15) $7\sqrt{x+3} = 5\sqrt{2x-6}$

16) $\sqrt{3-2x} = 5\sqrt{7+2x}$

Exercise 2: The speed of sound S , in meters per second, near Earth's surface can be determined using the formula $S = 20\sqrt{t + 273}$, where t is the surface temperature in degrees Celsius. Suppose a racing team has designed a car that can travel 340 meters per second, in hopes of breaking the sound barrier. At what temperature will the speed of sound be 340 meters per second?

Exercise 3: The formula $t = \sqrt{\frac{2s}{g}}$ can be used to determine the time t , in seconds, it takes an object initially at rest to fall s meters. In this formula, g is the acceleration due to gravity in meters per second squared.

- Suppose a rock falls 7.2 meters in 3 seconds on the moon. What is the acceleration due to gravity on the moon?
- Suppose a rock falls 78.4 meters in 4 seconds on Earth. What is the acceleration due to gravity on Earth?

Exercise 4: The lateral surface area of a right circular cone, s , is represented by the equation $s = \pi r \sqrt{r^2 + h^2}$, where r is the radius of the circular base and h is the height of the cone. If the lateral surface area of a large funnel is 236.64 square centimeters and its radius is 4.75 centimeters, find its height, to the *nearest hundredth of a centimeter*.

Exercise 5: The number of dogs, D , housed at a county animal shelter is modeled by the function $D = 4\sqrt{2M} + 50$, where M is the number of months the shelter has been open. How many months will it take for 74 dogs to be housed at the shelter?