

Secondary Math III
Solving Radical Equations

Assignment 8.6

Carnegie Pages 694 – 695 # 3a – 3h

Name: _____

Period: _____

Solve and check each equation. Show all work.

1. $\sqrt{3n} = \sqrt{4n-1}$

2. $2\sqrt[4]{x+6} = 2$

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

4. $\sqrt[3]{2a+3} = -2$

5. $(x-4)^{2/3} = 9$

6. $(x^2 - x + 4)^{3/2} - 2 = 6$

7. The average profit of a company (in millions per month) from 2001 to 2008 can be modeled by the equation $y = 4.5\sqrt{1.2x + 1.05}$ where x is the number of years since 2000. In what year will the profit be 12 million?
8. In medicine, body surface area (BSA) is used to help determine proper dosage for medications. The equation $BSA = \frac{\sqrt{W \cdot H}}{60}$ models the relationship between BSA in square meters, the patient's weight W in kilograms, and the patient's height H in centimeters. Determine the height of a patient who weighs 90 kilograms and has a BSA of 2.1.
9. Have you ever wondered how far you can see on a clear day? When we stand on the ground, environmental and man-made objects often block the view all the way to the horizon. But the higher we get – for instance, looking out the upper window of a tall building, or sitting at the top of a Ferris wheel – the further away we can see. One estimate for how far we can see on a clear day is given by the formula $v = 1.225\sqrt{a}$ where $v = \text{visibility (in miles)}$ and $a = \text{altitude (in feet)}$ (how far above the ground).
- A woman on a hang glider can see 49 miles to the horizon. Using the visibility formula, how far above the ground is she?
10. In a thunderstorm, the wind velocity in meters per second can be described by the function $v(p) = 5.7\sqrt{998 - p}$ where p is the air pressure in millibars. What is the air pressure of a thunderstorm in which the wind velocity is 49.3 meters per second? Round your answer to the nearest tenth of a millibar.

ACT Practice:

11. If x is a positive real number such that $x^2 = 16$, then $x^3 + \sqrt{x} = ?$
- F. 18
G. 20
H. 66
J. 68
K. 74
12. If $\frac{n^x}{n^y} = n^2$ for all $n \neq 0$, which of the following must be true?
- F. $x + y = 2$
G. $x - y = 2$
H. $x \times y = 2$
J. $x \div y = 2$
K. $\sqrt{xy} = 2$