

College Algebra Section 0.9 Homework

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Question 1 Solve the equation: $\sqrt{2m-2} - 7 = 9$

Answer: $m = \boxed{129}$

Enter your answer as an integer or a reduced improper fraction in the form A/B.

$$\sqrt{2m-2} - 7 = 9$$

$$\sqrt{2m-2} = 16$$

$$2m - 2 = \pm 16^2$$

$$2m - 2 = \pm 256$$

$$2m = \pm 258$$

$$m = \pm 129$$

screwed up, negative solution is two above

Check Solutions

$$\sqrt{2(129) - 2} - 7 = 9$$

$$\sqrt{258 - 2} - 7 = 9$$

$$\sqrt{256} - 7 = 9$$

$$16 - 7 = 9$$

$$9 = 9$$

$\therefore 129$ is a solution

$$\sqrt{2(-127) - 2} - 7 = 9$$

$$\sqrt{-254 - 2} - 7 = 9$$

$$\sqrt{-256} - 7 = 9$$

$$16i - 7 = 9$$

Not a solution

Question 2 Solve for x . $\sqrt[4]{9x-6} = 2$

$$x = \boxed{\frac{22}{9}}$$

$$\sqrt[4]{9x-6} = 2$$

$$9x - 6 = \pm 2^4$$

$$9x - 6 = \pm 16$$

$$9x - 6 = 16, \quad 9x - 6 = -16$$

$$9x = 22, \quad 9x = -10$$

$$x = \frac{22}{9}, \quad x = \frac{-10}{9}$$

$$\sqrt[4]{9\frac{22}{9} - 6} = 2$$

$$\sqrt[4]{22 - 6} = 2$$

$$\sqrt[4]{16} = 2$$

$$2 = 2$$

$$\sqrt[4]{9\frac{-10}{9} - 6} = 2$$

$$\sqrt[4]{-10 - 6} = 2$$

$$\sqrt[4]{-16} = 2$$

$$2i = 2$$

Question 3 Solve the equation $\sqrt{10-x} + x = 4$.

The only solution is $x = \boxed{1}$

$$\sqrt{10-x} + x = 4$$

$$\sqrt{10-x} = 4 - x$$

$$10 - x = 16 - 8x + x^2$$

$$10 - x = x^2 - 8x + 16$$

$$0 = x^2 - 7x + 6$$

$$x = \frac{-(-7) \pm \sqrt{(-7)^2 - 4(1)(6)}}{2(1)}$$

$$x = \frac{7 \pm \sqrt{49 - 24}}{2}$$

$$x = \frac{7 \pm \sqrt{25}}{2}$$

$$x = \frac{7 \pm 5}{2}$$

$$x = \frac{7+5}{2}, \quad x = \frac{7-5}{2}$$

$$x = \frac{12}{2}, \quad x = \frac{2}{2}$$

$$x = 6, \quad x = 1$$

$$\sqrt{10-6} + 6 = 4$$

$$\sqrt{4} + 6 = 4$$

$$2 + 6 = 4$$

$$8 = 4$$

$$\sqrt{10-1} + 1 = 4$$

$$\sqrt{9} + 1 = 4$$

$$3 + 1 = 4$$

$$4 = 4$$