

Name _____

Practice Test 4: Roots and Radical Equations

Simplify each radical expression.

1) $\sqrt{80} + \sqrt{20} - \sqrt{180}$

2) $\sqrt{18} - 2\sqrt{27} + 3\sqrt{3} - 6\sqrt{8}$

3) $(3\sqrt{7} - 4)(2\sqrt{7} - 5)$

4) $(3 - 4\sqrt{2})(3 + 4\sqrt{2})$

Rationalize the denominator.

5) $\frac{4}{\sqrt{3} - 5}$

6) $\frac{4 + 2\sqrt{7}}{6 + \sqrt{7}}$

Simplify expression. Assume all variables are positive. LEAVE FINAL ANSWERS IN RADICAL FORM.

7) $(64x^2y^8)^{\frac{1}{2}}$

8) $(27x^9)^{\frac{2}{3}}$

9) $x^{\frac{2}{3}} \cdot x$

10) $(y^{-2})^{\frac{5}{7}}$

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Solve the radical equation. Check for extraneous solutions.

10) $\sqrt{4x + 5} = x$

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

12) $\sqrt{4x + 3} - \sqrt{5x - 12} = 0$

13) $\sqrt{x + 4} + x = 8$

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

15) $2\sqrt{3x + 1} + 4 = 12$