

*SHOW ALL WORK!

Simplifying Radical Expressions

Key

Evaluate the following:

1. $1000^{2/3}$

100

2. $49^{-1/2}$

$1/7$

3. $\left(\frac{4}{9}\right)^{-1/2}$

$3/2$

4. $(-216)^{-1/3}$

$-1/6$

Simplify the following:

5. $\sqrt[5]{z^{11}}$

$z^2 \sqrt[5]{z}$

6. $\sqrt[3]{27a^3b^5}$

$3ab \sqrt[3]{b^2}$

7. $\sqrt[5]{243x^{11}y^8z^{20}}$

$3x^2yz^4 \sqrt[5]{xy^3}$

8. $\sqrt{300} - 2\sqrt{75} + \sqrt{12}$

$12\sqrt{3} - 10\sqrt{5}$

9. $(3\sqrt{5} - 1)(7\sqrt{5} + 2)$

$103 - \sqrt{5}$

10. $5\sqrt{18a^5} - 7\sqrt{32a^5} + 4\sqrt{50a^5}$

$7a\sqrt{2a^3}$

Rationalize the denominator:

11. $\frac{4}{\sqrt{7}}$

$\frac{4\sqrt{7}}{7}$

12. $\frac{2}{\sqrt{x+4}}$

$\frac{2\sqrt{x+4}}{x+4}$

13. $\frac{\sqrt{10} + \sqrt{2}}{\sqrt{10} - \sqrt{2}}$

$\frac{3 + \sqrt{5}}{2}$

14. Challenge Question: Find the exact value of $x^2 - 6x + 1$ if $x = 3 - \sqrt{10}$

2