

Name: _____

Date: _____

Homework: Operations with Radicals

Completely simplify each radical expression.

1) $\sqrt{80x^{19}y^2z^{21}}$

2) $\frac{9\sqrt{2}}{6\sqrt{8}}$

3) $\sqrt{27a^{11}} - 3\sqrt{75a^{11}} + \sqrt{588a^5}$

4) $4\sqrt{72}(-3\sqrt{8})$

5) $\frac{-1}{-1+\sqrt{2}}$

6) $\sqrt{800} + \sqrt{1800} - \sqrt{5000}$

7) $(\sqrt{6} - 2\sqrt{18})(\sqrt{225} + 3\sqrt{6})$

8) $\frac{5-\sqrt{7}}{\sqrt{12}-9}$

9)

Use the properties of rational exponents to determine the value of y for the equation:

$$\frac{\sqrt[3]{x^8}}{(x^4)^{\frac{1}{3}}} = x^y, x > 1.$$

10) Is the product of $\frac{3}{\sqrt{8}-4\sqrt{2}}$ and $\frac{11}{\sqrt{32}}$ rational or irrational? Explain your answer and show all of your work.

11) Completely simplify the following expression:

$$\frac{(-64)^{2/3} - (3)^{3/2}}{(1)^{9/7} - \left(\frac{1}{2}\right)^{-1/2}}$$