Name: _____ Date: _____ **Unit 8 Homework**

Rationalizing the Denominator Homework

Directions: Be sure to show all work, communicate your thought process, and justify your reasoning. Remember to check that your answers are complete, correct, and reasonable.

Simplify each expression by rationalizing the denominator.

1. $\dfrac{\sqrt{2x^{23}y}}{\sqrt{54x}}$

2. $\dfrac{\sqrt{r}-3\sqrt{s}}{9+\sqrt{s}}$

3. $\dfrac{p\sqrt{9q^2p^{-2}}}{\sqrt{108}}$

4. $\dfrac{8\sqrt{m}}{1-\sqrt{m}}$

5. $\dfrac{\sqrt[3]{64}}{5-\sqrt{28}}$

6. $\dfrac{-\sqrt{12}}{3+\sqrt{6}}$

Selected Solutions:

Unit 8 Homework

Name: Date:

Rationalizing HW

1) $\frac{\sqrt{2x^{23}y}}{\sqrt{54x}} \cdot \frac{\sqrt{54x}}{\sqrt{54x}} = \frac{\sqrt{108x^{24}y}}{54x} = \frac{6x^{12}\sqrt{3y}}{54x} = \boxed{\frac{x^{11}\sqrt{3y}}{9}}$

3) $\frac{p\sqrt{9q^2p^2}}{\sqrt{108}} = \frac{p\sqrt{q^2}}{\sqrt{12p^2}} \cdot \frac{\sqrt{12p^2}}{\sqrt{12p^2}} = \frac{p\sqrt{12q^2p^2}}{12p^2}$

$= \frac{2p^2q\sqrt{3}}{12p^2} = \boxed{\frac{q\sqrt{3}}{6}}$

5) $\frac{\sqrt[3]{64}}{5-\sqrt{28}} = \frac{4}{5-\sqrt{28}} \cdot \frac{(5+\sqrt{28})}{(5+\sqrt{28})} = \frac{20+4\sqrt{28}}{25-28}$

$= \frac{20+16\sqrt{7}}{-3} = \boxed{\frac{-20-16\sqrt{7}}{3}}$