**Reversibility**

**Part A: Rational Exponents**

Complete the table below.

| | Radical Form | Rational Exponent Form |
|---|---|---|
| 1. | $\sqrt{x}$ | |
| 2. | | $3^{\frac{1}{5}}$ |
| 3. | | $3^{\frac{2}{5}}$ |
| 4. | $\sqrt[7]{y^2}$ | |
| 5. | $\sqrt[5]{x^2y^3}$ | |
| 6. | | $x^6y^{\frac{1}{3}}$ |

For the problems below, first convert the expression to rational exponents and then simplify using the rules of exponents.

| | |
|---|---|
| 7. $\sqrt{x^3}\cdot\sqrt[4]{x}$ | 8. $\dfrac{\sqrt[3]{y^2}}{\sqrt[5]{y^2}}$ |

**Part B: Reversibility in Equations**

Reversibility is also an important concept in solving equations. In solving the following equation, *3* is added to both sides of the equation in order to *reverse* the subtraction.

$$2x - 3 = 5$$

$$2x - 3 + 3 = 5 + 3$$

$$2x = 8$$

This concept holds true whether you are working with variables or numbers.

9. Solve the following equations for x showing each step:

| $2x - 5 = 12$ | $mx - n = k$ |
| --- | --- |

10. Write responses to the two questions in complete sentences:

    a. What is the same about the two processes?

    b. What is different?