Math 105 Skill Quiz 5, Version A
Lesson 11, 12, 13, 14, and 15

Free Response: Solve each of the following problems. Show your work and box your final answer.

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3   1. Solve the following rational equation. Show your work:

$$x - \frac{2x}{x+3} = \frac{6}{x+3}$$

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3   2. Simplify using rules of radicals: $\sqrt[3]{n^4}$

3   3. Simplify each expression below as much as possible. Show your work.

$$\frac{2t}{t^2 - 1} + \frac{-1}{t - 1}$$

3   4. In your own words, explain the inverse operation for rational equations. Then, explain how to use this inverse to rational equations (Hint: see problem 3 above.)

3 5. Simplify the following expression. Show your work. $\sqrt[8]{a^{11}} \cdot \sqrt[8]{a^5}$

3 6. Simplify the following expression. Show your work. $\dfrac{\sqrt{12w^7y}}{4\sqrt{3w^3y^4}}$

7. Solve the following equation. Show your work.

$$3 + \sqrt[3]{y - 3} = 5$$

2   8. In your own words, explain the inverse operations for power expressions:

$$\sqrt[2]{x^2} = |x|, \qquad\qquad\qquad \sqrt[3]{x^3} = x$$

Explain why we use an absolute value to take the inverse of x^2 using a square root. Explain why no absolute value sign is necessary when we take the inverse of x^3 using a cube root. (Hint: see problem 8.)