Course: ______________ Date: ______________ Name: ________________________________

Show all of your work on this (or additional) sheets.

1. Simplify: $x^{-9}x^5$

2. Simplify: $(x^{-3})^3$

3. Simplify: $(x^3x^5)^{-2}$

4. Simplify: $(x^2y)^3(x^{-1}y^3)$

5. Simplify: $\left(\frac{64}{4}\right)^{1/2}$
6. Assume \(x, y, z > 0\). Rewrite the following with exponents to eliminate the square root: \(\sqrt{x^{-4}y^2z^3}\)

7. Simplify the following and get rid of all negative exponents: \(\frac{xz^{-3}}{xy^{-2}z^{-5}}\)

8. Simplify the following and get rid of all negative exponents: \((\frac{x^2y^3}{x^{-3}y^5})^{-4}\)

9. Solve for \(x\): \(4^{3x} = 16\)

10. Solve for \(x\): \(2 = 18 - 4^{x+1}\)