

Algebra 2 – Properties of Exponents Worksheet

Name: _____ Hour: _____

Simplify the following exponential expressions. Make sure that all your answers have positive exponents.

1. $x^3y^{-5}z^7 \cdot zx^{-4}y^2$

2. $a^{-2}b^3 \cdot b^{-1}a^{-5}$

3. $\frac{a^7b^{-3}c^4}{a^2b^5c^{-1}}$

4. $\frac{x^{-2}y^3z^{-1}}{xy^3}$

5. $\frac{x^3y^4z^7}{x^5y^2z^3}$

6. $\frac{a^2b^5}{a^4b^2c^{-3}}$

7. $\frac{a^{-3}b^{-3}c^2}{a^2c^5}$

8. $\frac{x^3y^2z^5}{x^3yz^4}$

9. $\frac{3x^2y^3}{2} \cdot \frac{4x^{-3}y^4}{xy^8}$

10. $\frac{5ab^{-3}}{3cb^4} \cdot \frac{6a^3b}{10^4b^{-2}}$

11. $\frac{6y^4z}{x^{-1}yz^3} \cdot \frac{2x^2y^{-2}}{3z^3}$

12. $\frac{5a^2b^{-2}}{6c} \cdot \frac{3c^7b^{-1}}{4a^{-4}b^5}$

Convert the following to have positive exponents, then simplify by “distributing” the exponent to the numerator and denominator.

13. $\left(\frac{3}{4}\right)^{-3} =$

14. $\left(\frac{1}{2}\right)^{-5} =$

15. $\left(\frac{\sqrt{5}}{6}\right)^{-2} =$

16. $\left(\frac{2}{5}\right)^{-1} =$

17. $\left(\frac{2}{\sqrt{3}}\right)^{-2} =$

18. $\left(\frac{3}{2}\right)^{-4} =$