**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_\_\_\_\_**

**8.1-8.3 Practice**

**Simplifying Exponents**

**Simplify. Your answer should contain only positive exponents.**

**1.** 3$b^{0}$ ∙2$a^{3}$ **2.**  *x* ∙ *y*$x^{2}$ ∙ *y*$x^{2}$ **3.** 3$x^{3}y^{3}$ ∙ 3$x^{3}y^{3}$

**4.**  3*mn* ∙ 3*m*$n^{3}$ **5.** 3*a*$b^{3}$ ∙ $a^{3}b^{3}$ **6.** 2$n^{3}$ ∙ 3$mn^{3} $

**7.** 2$a^{3}b^{3}$ ∙ 2$a^{3}b^{2}$ **8.** 3*x* ∙ 2$y^{3}$ **9.** 3$mn^{2}$ ∙ 2$m^{2}n^{3}$

**10.** 3$u^{2}v^{2}$ ∙ 2*uv* **11.** –*n*$m^{-4}$ ∙ ($m^{0}n^{4})^{3}$ **12.** (–$x^{3}∙x^{-4})^{5}$

**13.** (–$x^{3}y^{2})^{4}$ ∙ –*x*$y^{3}$**14.**  ($x^{3}y^{3})^{5}$(–$x^{-4}y^{0})^{3}$ **15.**  –*x*$y^{-3}$ ∙ ($x^{-1}y^{4})^{3}$

**16.** ($x^{-3}y^{4})^{5}$ ∙ –*y*  **17.** ($x^{-2}y^{5})^{3}$ ∙ $x^{-5}y^{-3}$ **18.** (–$m^{-3}n^{0})^{4}$ ∙ –$m^{2}n^{2}$

**19.** $x^{-5}y^{4}$ ∙ (-$–y^{3})^{4}$ **20.** (–$m^{3})^{3}$ ∙ –$m^{2}n^{4}$ **21.** $ \frac{4m^{-2}n^{-2}}{-4mn^{4}}$

**22.** $ \frac{-5x^{0}y^{2}}{-4x^{-5}y^{-1}}$ **23.** $ \frac{-5x^{-3}y^{2}}{-xy^{2}}$ **24.** $\frac{xy^{-3}}{2x^{4}y^{4}}$

**25.** $\frac{-4u^{0}v^{-3}}{-3v^{3}}$ **26.** $\frac{3m^{5}}{-m^{3}n^{5}}$ **27. –** $\frac{5m^{-5}}{5n^{-4}}$

**28.** $\frac{2a^{-3}b^{5}}{3a^{2}b^{5}}$ **29.** $\frac{2v^{-3}}{2u^{3}v^{-1}}$ **30.** $\frac{x^{-3}y^{-2}}{-3x^{0}y^{5}}$

**31.** 3$n^{2}$ ∙ 3*n***32.** $v^{3}$ ∙ 2$v^{3}$  **33.** 2$n^{2}$ ∙ 2$n^{2}$

**34.** $ a^{2}∙a^{2}$ **35.** 3*x·*$x^{3}$**36.** 3*x* ∙ 3$x^{0}$

**37.** $ x^{3}$ $∙ $2$x^{2}$ **38. 2***a* ∙ 2$a^{3}$ ∙ 2$a^{0}$  **39.** 3$k^{3}$ ∙ 2$k^{2}$ ∙ 3*k*

**40.** $ p^{2}$ ∙ 3$p^{2}$ **41.** $\frac{3x^{0}}{-5x^{5}}$ **42.** $ \frac{4x}{-x^{-1}}$

**43.** $ \frac{5x^{2}}{3x^{5}}$ **44.**$ \frac{3v^{-4}}{-v^{4}}$ **45. –** $\frac{5a^{0}}{2a^{-4}}$

**46 .** $\frac{x^{-5}}{-2x^{-4}}$ **47.**$ $**–** $\frac{2x^{5}}{2a^{-4}}$ **48.** $ $**–** $\frac{3n^{-1}}{5n^{5}}$

**49.** $\frac{5x^{4}}{-5x}$ **50.** $\frac{4n^{-4}}{-4n^{0}}$ **51.** $\frac{5m^{-2}n^{-4}}{-4m^{0}n^{2}}$

**52.** $\frac{-4x^{0}y^{3}}{-2x^{-5}y^{-5}}$ **53. –** $\frac{3x^{2}}{2x^{-4}y^{2}}$ **54.** $\frac{mn^{4}}{2m^{0}n^{0}}$

**55.** $\frac{-4a^{0}}{-3a^{4}}$ **56.** $\frac{-3mn^{-2}}{-4m^{5}n^{3}}$ **57. –**$ \frac{x^{-2}y^{-3}}{3y^{-5}}$

**58.** $\frac{5x^{3}y^{3}}{3x^{5}y^{5}}$ **59.** $\frac{-5y^{0}}{-5x^{-5}y^{3}}$ **60.** $\frac{5x^{3}y^{-1}}{-2x^{5}y^{3}}$

**61.** $\frac{\left(-x^{2}y^{3}\right)^{2}}{\left(-x\right)^{2}∙-xy^{3}}$ **62.** $\left(-\frac{x^{3}y^{3}}{x^{-5}y^{0}·-x^{5}y^{3}}\right)^{-1}$ **63.** $\left(\frac{x^{4}y^{3}}{-y^{2}·x^{-3}y^{-5}}\right)^{0}$

**64.** $\frac{a^{2}b^{3}·-ba^{-1}}{\left(-a^{-2}b^{-4}\right)^{3}}$ **65.** $\left(\frac{x^{3}y^{5}·y^{5}}{-y^{2}·x^{3}y^{-5}}\right)^{0}$ **66.** $\frac{-x^{4}y^{2}·\left(x^{4}·x^{-3}y^{5}\right)^{2}}{-x^{3}y^{-2}}$

**67.** $-\frac{nm^{-2}·-m^{2}n^{5}}{\left(m^{-5}n^{2}\right)^{2}}$ **68.** $\left(\frac{\left(xy^{3}\right)^{2}}{-x^{3}y^{-2}·x^{2}y^{2}}\right)^{-5}$ **69.** $\frac{\left(ab^{5}\right)^{-3}b^{5}}{-b}$

**70.** $\left(\frac{v^{0}}{-u^{2}v^{-3}·-u^{-3}v^{3}}\right)^{-1}$ **71.** $\frac{\left(-m^{-1}\right)^{3}}{-nm^{5}·-m^{0}}$ **72.** $\left(\frac{-x^{3}y^{-1}}{-x^{-1}y^{4}·-xy^{0}}\right)^{3}$

**73.** $\frac{x^{-2}y^{5}·y^{0}}{\left(-y^{5}\right)^{-1}}$ **74.** $\left(\frac{-x^{5}y^{0}}{-y^{-3}·-x^{-5}y^{2}}\right)^{5}$ **75.** $\left(-\frac{x^{3}·y^{2}·-y}{x^{5}y^{2}}\right)^{2}$

**76.** $\left(\frac{n^{4}}{-m^{4}n^{5}·-m^{5}}\right)^{0}$ **77.** $\left(\frac{x^{4}y^{-4}·x^{3}y^{3}}{\left(-x^{3}y^{0}\right)^{5}}\right)^{-4}$ **78.** $\frac{\left(x^{2}\right)^{0}}{x^{0}y^{5}·xy^{-5}}$

**79.** $\left(\frac{\left(u^{2}\right)^{3}·-u^{4}v^{5}}{-v^{4}}\right)^{-4}$ **80.** $\left(\frac{x^{4}y^{2}·x^{-1}y^{5}}{y}\right)^{-4}$