

UNIT 6 – STUDY GUIDE

TEST #1



NAME _____

Simplify the expression:

1. $x^6 \cdot x^3$

1. x^9

2. $(n^4)^{10}$

2. n^{40}

3. $(nm^7)^2$ n^2m^{14}

3. n^2m^{14}

4. $(5a)^4(3a)^2$ $5^4a^4 \cdot 3^2a^2 = 5^43^2a^6$

4. $5^4 \cdot 3^2 \cdot a^6$

5. $\frac{x^{10}}{1} \cdot \frac{1}{x}$ $\frac{x^{10}}{x} = \frac{x^9}{1}$

5. $\frac{x^9}{1} = x^9$

6. $x^4 \cdot (5x^2y)^6$ $x^4 \cdot 5^6 \cdot x^{12} \cdot y^6$

6. $5^6x^{16}y^6$

Complete the expression with $>$ $<$ \geq \leq or $=$.

7. $2^3 \cdot 2^6$ _____ 2^{18}
 $2^9 < 2^{18}$

7. $<$

8. $(2^6)^2$ _____ 2^8
 $2^{12} > 2^8$

8. $>$

Simplify using only POSITIVE exponents.

9. $(-5.763)^0$

9. 1

10. $(6)^{-3}$ $\frac{1}{6^3}$

10. $\frac{1}{6^3}$

11. $\frac{x^4y^{-4}}{1}$ $\frac{x^4}{y^4}$

11. $\frac{x^4}{y^4}$

$$12. \frac{xy^{-5}}{7x^{-3}} \cdot \frac{x \cdot x^3}{7y^5} = \frac{x^4}{7y^5}$$

$$12. \frac{x^4}{7y^5}$$

$$13. \frac{a^{-5}}{b^{-8}} \cdot \frac{b^8}{a^5}$$

$$13. \frac{b^8}{a^5}$$

$$14. \frac{x^9}{x^4} \cdot \frac{x^5}{1}$$

$$14. \frac{x^9}{1} = x^9$$

$$15. \left(\frac{y}{5}\right)^{-3} \cdot \frac{y^{-3}}{5^{-3}} = \frac{5^3}{y^3}$$

$$15. \frac{5^3}{y^3}$$

$$16. \left(\frac{3^2x}{x^3y^{-2}}\right)^{-2} \cdot \frac{3^{-4}x^{-2}}{x^{-6}y^4} = \frac{x^6}{3^4x^2y^4} = \frac{x^4}{3^4y^4}$$

$$16. \frac{x^4}{3^4y^4}$$

$$17. \frac{5x^6}{y^8} \cdot \frac{y^9}{x^6} \cdot \frac{5x^6y^9}{y^8x^6} \cdot \frac{5y^1}{1}$$

$$17. 5y$$

$$18. (y^5x)^3 \cdot (x^5y^4)^2 \cdot y^{15}x^3 \cdot x^{10}y^8 = x^{13}y^{23}$$

$$18. x^{13}y^{23}$$

$$19. \frac{5y^{10}x^{-3}}{3x^7y} \cdot \frac{5y^{10}}{x^3 \cdot 3x^7y} = \frac{5y^9}{x^{10} \cdot 3} = \frac{5y^9}{3x^{10}}$$

$$19. \frac{5y^9}{3x^{10}}$$

$$20. \frac{4xy^5}{7x^3} \cdot \frac{x^3y^4}{y^8} \cdot \frac{4x^3y^5}{7x^2y^4} = \frac{4xy}{7}$$

$$20. \frac{4xy}{7}$$