

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Block: \_\_\_\_\_

Algebra – WS Product Properties of Exponents

**Simplify.**

1.  $2^2 \cdot 2^3$                       2.  $5^3 \cdot 5^3$                       3.  $n^6 \cdot n^2$                       4.  $x^2 \cdot x^{-3} \cdot x^4$

**Simplify.**

6.  $(x^2)^5$                               7.  $(y^4)^8$                               8.  $(p^3)^3$

9.  $(3^{-2})^2$                               10.  $(a^{-3})^4 \cdot (a^7)^2$                               11.  $xy \cdot (x^2)^3 \cdot (y^3)^4$

12.  $(2t)^5$                               13.  $(6k)^2$                               14.  $(r^2s)^7$

15.  $(-2x^5)^3$                               16.  $-(2x^5)^3$                               17.  $(a^2b^2)^5 \cdot (a^{-5})^2$

**Simplify.**

18.  $3^3 \cdot 2^3 \cdot 3$                       19.  $6 \cdot 6^2 \cdot 6^3 \cdot 6^2$                       20.  $a^5 \cdot a^0 \cdot a^{-5}$                       21.  $x^7 \cdot x^{-6} \cdot y^{-3}$

23.  $(2^3)^3$                               24.  $(3^6)^0$                               25.  $(x^2)^{-1}$

26.  $(b^4)^6 \cdot b$                               27.  $b \cdot (a^3)^4 \cdot (b^{-2})^3$                               28.  $(x^4)^2 \cdot (x^{-1})^{-4}$

Find the missing exponent in each expression.

35.  $a^{\square} a^4 = a^{10}$

36.  $(a^{\square})^4 = a^{12}$

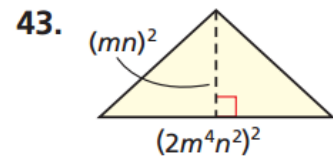
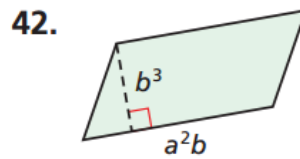
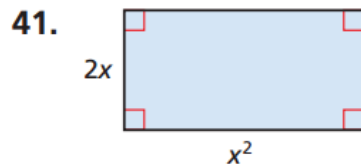
37.  $(a^2 b^{\square})^4 = a^8 b^{12}$

38.  $(a^3 b^6)^{\square} = \frac{1}{a^9 b^{18}}$

39.  $(b^2)^{-4} = \frac{1}{b^{\square}}$

40.  $a^{\square} \cdot a^6 = a^6$

**Geometry** Write an expression for the area of each figure.



Simplify, if possible.

44.  $x^6 y^5$

45.  $(2x^2)^2 \cdot (3x^3)^3$

46.  $x^2 \cdot y^{-3} \cdot x^{-2} \cdot y^{-3}$

47.  $(5x^2)(5x^2)^2$

48.  $-(x^2)^4(-x^2)^4$

49.  $a^3 \cdot a^0 \cdot 3a^3$

50.  $(ab)^3(ab)^{-2}$

51.  $10^2 \cdot 10^{-4} \cdot 10^5$

52.  $(x^2 y^2)^2 (x^2 y)^{-2}$