Principles of Algebra Name/Date Clee / Today

ALL PROBLEMS CAN BE COMPLETED ON THIS WORKSHEET

# WS 10B.1 – Powers to Powers / Products to Powers

**#1-3, Simplify.**

1. $(4^2)^5$ (leave answer in exponent form)

$= \boxed{4^{10}}$

Powers to powers → MULTIPLY EXPONENTS

2. $(-3b^3)^4$ $= (-3)^4(b^3)^4$

$= \boxed{81b^{12}}$

3. $(-2n^4p)^5$

$= (-2)^5(n^4)^5(p)^5$

$= \boxed{-32n^{20}p^5}$

**#4-9, Simplify.**

4. $(-xy^6)(x^4)^3$

$= (-xy^6)(x^{12})$

$= \boxed{-x^{13}y^6}$

5. $(-2ab^7)^3(-a^6)^2$

$= -8a^3b^{21} \cdot 1a^{12}$

$= \boxed{-8a^{15}b^{21}}$

6. $(4a^5)^2(-a^4)^2$

$= 16a^{10} \cdot 1a^8$

$= \boxed{16a^{18}}$

7. $(x^5z^4)^3(3x^8z^9)^4$

$= 1x^{15}z^{12} \cdot 81x^{32}z^{36}$

$= \boxed{81x^{47}z^{48}}$

8. $(-5p^3q^7)^3(-5m^{19}p^8q^6)^2$

$= -125p^9q^{21} \cdot 25m^{38}p^{16}q^{12}$

$= \boxed{-3125m^{38}p^{25}q^{33}}$

9. $(-6wd^5f^{11})^2(-w^4d^{12}f^2)^2(-w^{10}d^9f)^3$

$= 36w^2d^{10}f^{22} \cdot 1w^8d^{24}f^4 \cdot -1w^{30}d^{27}f^3$

$= \boxed{-36w^{40}d^{61}f^{29}}$