Name_____**Date**_____**Hour**_____

Worksheet 8.1 – Multiplication Properties of Exponents – Textbook pages 450-455

LEVEL 1
Simplify each expression.

1) $x(x^3)(x^2)$

2) $3^4(3^5)$

3) $(z^5)(z^6)(z)$

4) $(y^7)^3$

5) $(-3)^2$

6) -3^2

LEVEL 2
Simplify each expression.

7) $(2xy^4)^5$

8) $(2x^3x^4)^3$

9) $w^5(2w^2)^3$

LEVEL 3
Simplify each expression.

10) $(-3x^4y^5)^3$

11) $(-(-4x)^2)^3$

12) $5x(xyz^2)^2$

13) $4h^2(3h^3)^2$

14) $(-tu)(t^5u)^3$

15) $4x^6(10x^5)^4$

LEVEL 4

16) The power generated by a windmill can be modeled by the equation $w = 0.015s^3$, where w is the power measured in watts and s is the wind speed in miles per hour. Find the ratio of power generated by a windmill when the wind speed is 30 miles per hour to the power generated when the wind speed is 10 miles per hour.

Write a general statement about how tripling the wind speed affects the amount of power generated by a windmill.

Explain why tripling the wind speed does not just triple the power generated. Talk about the equation in your explanation.