Assessment : Powers

name: _____ **date:** _____

Outcome: Powers					
35%	Level 1 (55%)	Level 2 (65%)	Level 3 (75%)	Level 4 (90%)	Level 4+ (100%)
Student has not yet demonstrated understanding of the standard.	Student is demonstrating an emerging understanding of the standard.	Student's demonstration of understanding is approaching the standard.	Student's demonstration of understanding is reaching the standard.	Student's demonstration of understanding is exceeding the standard.	Student's demonstration of understanding is extending the standard.

Reaching Standard (Level 3)

1. Simplify the following:

   $4(3a^2)^4 - 7n^5 - (m^4)^2$

2. A cow has an average mass of about 5×10^2 kg. A mouse has an average mass of about 2×10^{-2} kg. Approximately how many times more mass does a cow have than a mouse?

Exceeding Standard (Level 4)

3. A tiny space inside a computer chip has been measured to be 2.56×10^{-6}m wide, 1.4×10^{-7}m long and 2.75×10^{-4}m high. What is the volume of the space? Keep your answer in scientific notation.

4. Simplify, then evaluate the following:

   a) $((-2)^3)^2 \div (-2)^4$

   b) $\left(\frac{6xy}{2xy^{-4}}\right)^2$

Extending Standard (Level 4+)

5. Simplify the following:

   a) $3^a \times 3^b \div 3^c = 3^?$

   b) $4^{a+b} \times 4^{a-b} = 4^?$

6. Simplify the following:

$$\frac{(8x^7y^{-3})(4xy)^2}{(2xy^{-2})^4}$$