Name: _____Key_____
Date: _____ Period: _____

SHOW ALL WORK!

Complete each of the following problems then match your answer to the cards around the room. Use the letter hidden behind each solution to find the answer to the joke below.

Why won't Goldilocks drink a glass of water with eight pieces of ice in it?

It's $\dfrac{T}{8}$ $\dfrac{\triangle}{5}$ $\dfrac{O}{6}$ $\dfrac{C}{1}$ $\dfrac{u}{7}$ $\dfrac{B}{3}$ $\dfrac{E}{4}$ $\dfrac{D}{2}$

Perform the indicated operations and simplify.

1. __C__ $-5^0 = -1$

2. __D__ $(81)^{-1/2} = \dfrac{1}{\sqrt{81}} = \dfrac{1}{9}$

3. __B__ $(5x^7)(6x^{-1})$

$30x^6$

4. __E__ $\left(\dfrac{9x^{-2}}{y^3 z}\right)^{-1/2}$

$\dfrac{9^{-1/2}\, x^1}{y^{-3/2}\, z^{-1/2}}$

$\dfrac{x\, y^{3/2}\, z^{1/2}}{9^{1/2}}$

$\dfrac{x\, y^{3/2}\, z^{1/2}}{3}$

Perform the indicated operations and simplify.

5. __O__ $(x+3)^{-3}$

$$\frac{1}{(x+3)^3}$$

$$\frac{1}{(x+3)(x+3)(x+3)}$$

$$(x^2+6x+9)(x+3)$$

$$x^3+6x^2+9x+3x^2+18x+27$$

$$\frac{1}{x^3+9x^2+27x+27}$$

6. __O__ $\left(4x^3y^{1/3}z^{-2}\right)^3$

$$4^3 x^9 y z^{-6}$$

$$\frac{64x^9 y}{z^6}$$

7. __u__ $\left(3x^{2/3}\right)\left(7x^{1/5}\right)$

$$21 x^{\frac{2}{3}\cdot\frac{5}{5}+\frac{1}{5}\cdot\frac{3}{3}}$$

$$21 x^{10/15 + 3/15}$$

$$21x^{13/15}$$

8. __T__ $\left(\dfrac{4x^2yz^{-2}}{12x^{-1}y^3z^{-3}}\right)^2$

$$\left(\frac{1}{3}\frac{x^3 z}{y^2}\right)^2$$

$$\frac{x^6 z^2}{9y^4}$$