Before we begin, are there any questions from last day's work?

Entertainment: Factoring Worksheets #1-28

24) $-12x + 6xy^2 - 15x^3y^3$

$= -3x(4 - 2y^2 + 5x^2y^3)$

26) $27x^2y^5 - 72x^3y^2$

$= 9x^2y^2(3y^3 - 8x)$

28) $8x^3y^2 + 4x^3$

$= 4x^3(2y^2 + 1)$

Cycle 2 Day 6 MBF 3CI CHAPTERS 4, 5, 7: RELATIONS Date: NOV. 10/17

LEARNING TARGET:

"I can simplify a "power of a power" and understand an exponent of zero."

1. Finding the power of a power.

Power of a Power	Expanded Form	Number of Factors of Given Base	Single Power	Short Cut
$(5^3)^2$	$(5^3)(5^3) = (5\times5\times5)(5\times5\times5)$	6	5^6	$5^{3\times2} = 5^6$
$(3^2)^4$	$(3^2)(3^2)(3^2)(3^2) = (3\times3)(3\times3)(3\times3)(3\times3)$	8	3^8	$3^{2\times4} = 3^8$
$\left(\left(\frac{2}{3}\right)^2\right)^3$	$\left(\frac{2}{3}\right)^2\left(\frac{2}{3}\right)^2\left(\frac{2}{3}\right)^2$ $\left(\frac{2}{3}\times\frac{2}{3}\right)\cdot\left(\frac{2}{3}\times\frac{2}{3}\right)\cdot\left(\frac{2}{3}\times\frac{2}{3}\right)$	6	$\left(\frac{2}{3}\right)^6$	$\left(\frac{2}{3}\right)^{2\times3} = \left(\frac{2}{3}\right)^6$
$((-6)^5)^2$	$(-6)^5(-6)^5$ $(-6)(-6)(-6)(-6)(-6)\times(-6)(-6)(-6)(-6)(-6)$	10	$(-6)^{10}$	$(-6)^{5\times2} = (-6)^{10}$

Rule 3

To simplify a power of a power, keep the SAME BASE, and MULTIPLY the exponents.

Rule 4

Any base raised to an exponent of ZERO equals ONE.

Ex.1 Simplify. a) $(476)^0$ b) $(-32)^0$ c) $(10xy^5 \div 2y^3)^0$

$= 1$ $= 1$ $= 1$

Summary:

3) $(a^m)^n$	4) a^0
$= a^{m \times n}$	$= 1$

Ex.2 Without a calculator, write as a single power (which means simplify).

a) $2^2 \times 2^3$ b) $10^{15} \div 10^5$ c) $(2^3)^2$ d) $5^3 \times 5^4 \div 5^7$

$= 2^{2+3}$ $= 10^{15-5}$ $= 2^{3 \times 2}$ $= 5^{3+4-7}$

$= 2^5$ $= 10^{10}$ $= 2^6$ $= 5^{7-7}$

$= 5^0$

Ex.3 Without a calculator, evaluate each answer in Ex.2.

a) 2^5 b) 10^{10} c) 2^6 d) 5^0

$= 32$ $= 10\,000\,000\,000$ $= 64$ $= 1$

Entertainment: pp. 361-363 #3a-f, 4ace, 5cde, 17a-d
p. 368 #3ad, 7aef,
p. 414 #1a-h

Go back to the Learning Target.

Can you confidently say that you have met today's goal?