Created by Mr. Lischwe

Warmup $1/(2^2)^2$

1) $18 - 21$ -3

2) $18 + (-21)$ -3

3) $-36 + 5$ -31

4) $-36 - 5$ -41

5) $20 - (-17)$ 37

6) $(-12) + (-18)$ -30

7) $-100 + 9$ -91

8) $-100 + 380$ 280

9) $-25 - (-2)$ -23

10) $-7 - (-7)$ 0

11) $-1 - 2 - 3 - 4$ -10

12) $67 - 71$ -4

*****EVERYONE NEEDS A WHITEBOARD, MARKER, ERASER!!!*****

2) 5^9

4) h^{36}

6) 5^8

8) $1{,}331c^{12}$

10) $64m^{30}n^{66}$

14) Length x width x height

$=3w^4 \cdot 3w^4 \cdot 3w^4$

$= 27w^{12}$

20) x = 5

21) x = 3

22)

To simplify $(2a^3)(4a^6)$, multiply 2 times 4, keep the a, and add 3 + 6.

To simplify $(2a^3)^6$, do 2 to the 6th power, and multiply 3 x 6.

p. 35 (2-10 even, 14, 20, 21)

Correct your Exit Ticket!!!

- Do all corrections on the **back** of the notecard, in a different color.
- For each problem you got wrong, **you MUST expand out the powers.** This will help you see where you went wrong.
- When I OK your corrections, I will give you the exit ticket redo. You must complete all 3 problems on the redo, even if you only missed 1.
- If you had no corrections (or if you finish your redo quickly), work on the challenge problem.

EXIT TICKET

- **Do these on a notecard. You may not get help from me, your classmates, or your notes.**

1) $8x^4 \cdot 4x^8$

2) $\frac{16y^7}{8y}$

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

$x^5 \cdot x^3$ $\quad (x \cdot x \cdot x \cdot x \cdot x) \cdot (x \cdot x \cdot x) \quad = x^8$

$5x^5 \cdot 3x^3$ $\quad (5 \cdot x \cdot x \cdot x \cdot x \cdot x) \cdot (3 \cdot x \cdot x \cdot x) \quad = 15x^8$

$\frac{y^8}{y^2}$ $\quad \frac{y \cdot y \cdot y \cdot y \cdot y \cdot y \cdot y \cdot y}{y \cdot y} \quad = y^6$

$\frac{8y^8}{2y^2}$ $\quad \frac{8 \cdot y \cdot y \cdot y \cdot y \cdot y \cdot y \cdot y \cdot y}{2 \cdot y \cdot y} \quad = 4y^6$

$(x^4)^3$ $\quad x^4 \cdot x^4 \cdot x^4 \quad = x^{12}$

$(4x^4)^3$ $\quad 4x^4 \cdot 4x^4 \cdot 4x^4$

$= 4 \cdot x \cdot x \cdot x \cdot x \cdot 4 \cdot x \cdot x \cdot x \cdot x \cdot 4 \cdot x \cdot x \cdot x \cdot x \quad = 64x^{12}$

Let's Review:

Super-Crazy Example

$$\frac{x^3 \cdot \overbrace{\left(x^5 \cdot x^1\right)^2}^{x^6}}{x^4 \cdot \left(x^3\right)^5 \cdot x} \cdot \frac{\overbrace{\left(\left(x^3\right)^2\right)^2}^{x^{12}}}{x}$$

$$\frac{x^3 \cdot x^{12}}{x^4 \cdot x^{15} \cdot x^1} \cdot \frac{x^{12}}{x^1} \longrightarrow \frac{x^{15}}{x^{20}} \cdot \frac{x^{12}}{x^1}$$

$$\downarrow$$

$$\frac{x^{27}}{x^{21}} \rightarrow \boxed{x^6}$$

Super-Crazy Example

Simplify:

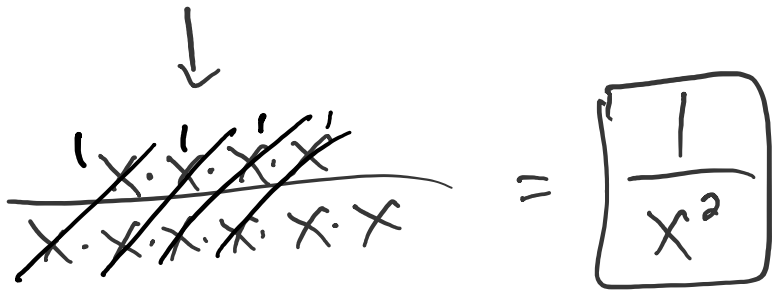
$$\frac{-2a^6 \cdot 6b^3 \cdot a \cdot 4b^5}{18b^4 \cdot a^5 \cdot 3b^2}$$

$\frac{-48a^7b^8}{54a^5b^6}$ → $-\frac{8}{9}a^2b^2$

WHITEBOARDS:

(Remember, don't leave a negative exponent in your answer!!!)

Simplify: $\frac{x^4}{x^6} = x^{-2} = \frac{1}{x^2}$



$= \frac{1}{x^2}$

WHITEBOARDS:

Rewrite each without a negative exponent:

1) b^{-4} $\frac{1}{b^4}$

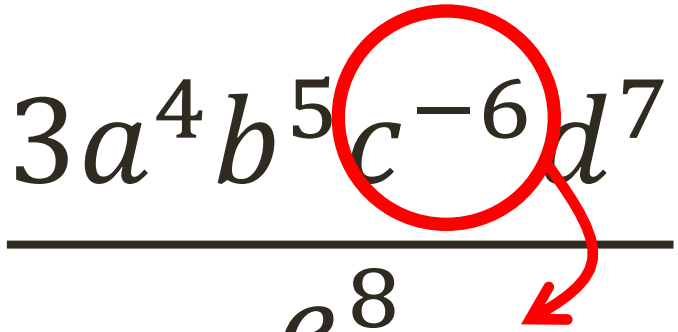
2) $a^6 b^{-4}$ $\frac{a^6}{b^4}$

3) 12^{-6} $\frac{1}{12^6}$

4) $12a^{-6}$ $\frac{12}{a^6}$

How would you rewrite this?

$$\frac{3a^4b^5c^{-6}d^7}{e^8}$$



$$\frac{3a^4b^5d^7}{e^8c^6}$$

» The negative power only goes under 1 if there's nothing else in the problem. If there's other stuff in the problem, the negative power goes under that.

$$b^{-7} \rightarrow \frac{1}{b^7}$$

$$a^5 b^{-7} \rightarrow \frac{a^5}{b^7}$$

Homework

Shortcuts vs. Expanding Worksheet