Zero and Negative Exponents

Do Now: Let's try another Combo Problem from yesterday's lesson

$(-5y^5x)^3 \cdot (2x^3y^2)^2$

Let's Investigate!

(be sure to change all decimals to fractions)

$2^4 =$

$2^3 =$

$2^2 =$

$2^1 =$

$2^0 =$

$2^{-1} =$

$2^{-2} =$

$2^{-3} =$

$2^{-4} =$

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Examples

1) $4y^0$

2) 6^{-2}

3) 5^{-3}

4) $(5^{-2}g)^0 \cdot 7^2$

5) $(2^{-1}y^3)^2 \cdot 2^5x^0$

6. $\frac{1}{(-5)^{-3}}$

7) $\frac{3a^{-2}b^{3}}{b^{-4}}$

8) $\frac{-4b^{5}c^{2}}{b^{-3}c^{2}}$

9. $(\frac{2}{3})^{-3}$

10) $(\frac{3}{8})^{-2}$

11) $\left(\frac{-3}{2^3}\right)^{-2}$

12) $\left(\frac{3a^3b^{-4}}{a^{-1}b^2}\right)^{-2}$

13) $\left(\frac{x^3y^{-2}}{z^{-5}}\right)^{-4}$

Classwork and Homework:

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

2) $\left(2^{-1}\right)^3$

3) $m^{-3}n^2$

4) $\frac{3}{\left(4x^{-1}\right)^2}$

5) $(13t)^0$

6) $\left(5m^{10}n^3\right)^{-3}$

7) $\frac{x^3yz^0}{y^{-2}}$

8) $\left(4^2a^3b^0\right)^{-4}$

9. $8x^{-2}y^{-6}$

10. $\dfrac{1}{9x^{-3}y^{-1}}$

11. $\left(\dfrac{-4x^{2}}{2x^{-1}}\right)^{-1}$

12. $\dfrac{x^4 y^{-8} z^{-2}}{x^{1} y^{6} z^{10}}$

13. $\left(\dfrac{2x^3 y^4}{3xy}\right)^3$

14. $\left(\dfrac{4x^3 y^3}{2xy}\right)\left(\dfrac{5xy^2}{2y}\right)$

15. $\dfrac{16x^5 y^{-8}}{x^7 y^4} \bullet \left(\dfrac{x^3 y^2}{8xy}\right)^4$

16. $\dfrac{5x^{-3} y^2}{x^5 y^{-1}} \bullet \dfrac{(2xy^3)^{-2}}{xy}$