Algebra 1 - Douglas Anderson School of the Arts

Name Class Notes & HW (10)

# Working with Negative Exponents

Date 9/6/18 Period B3/B4

**Class Examples: Remember** $x^{-a} = \frac{1}{x^a}$ **and** $\frac{1}{x^{-b}} = x^b$ → the fraction flips

1) $\frac{4^{-2}}{1}$ ↳ $\frac{1}{4^2} = \frac{1}{16}$

2) $\frac{-4a^3b^{-2}}{1}$

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

think how they relate to these

$2^{-3} = \frac{1}{8}$ ×2

$2^{-2} = \frac{1}{4}$ ×2

$2^{-1} = \frac{1}{2}$ ×2

$2^0 = 1$ ×2

$2^1 = 2$ ×2

$2^2 = 4$ ×2

$2^3 = 8$ ×2

$2^4 = 16$

**Simplify. Your answer should contain only positive exponents.**

3) $3^3 \cdot 3^2 \cdot 3^4$

4) $3^2 \cdot 3^{-1}$

5) $2^3 \cdot 2^{-1}$

6) $2^2 \cdot 2^3$

7) $2x \cdot -4x^3$

8) $-4x^{-4} \cdot -x^{-4}$

9) $3b \cdot -b^3$

10) $-3x^{-3} \cdot 3x$

11) $-4u^{-3} \cdot 3u^3v^3$

12) $3x^4y^2 \cdot 2y^{-4}$

**Class Examples:**

13) $\frac{2x^{-1}}{4x}$

14) $\frac{4p^{-3} \cdot 4p^{-2}}{4p^2}$

**Simplify. Your answer should contain only positive exponents.**

15) $\frac{4v^4}{2v^2 \cdot v}$

16) $\frac{2m^{-3} \cdot m}{4m^{-1}}$

17) $\dfrac{3n^{-2}}{4n \cdot 4n^3}$

18) $\dfrac{3k^3 \cdot 2k^3}{k^{-3}}$

19) $\dfrac{3x^{-2} \cdot 4x^{-4}}{4x^2}$

20) $\dfrac{2n^3 \cdot 4n \cdot 2n^{-2}}{n^3}$

21) $\dfrac{n^{-4}}{4n^{-3} \cdot 2n^{-2}}$

22) $\dfrac{b^{-2}}{4b^3 \cdot 2b^4}$

**CLASS EXAMPLES: Simplify. Your answer should contain only positive exponents.**

23) $\dfrac{2m^4 \cdot 2m}{(m^3)^3}$ $\quad \dfrac{4m^5}{m^9} \quad \dfrac{4}{m^4}$

24) $\dfrac{(n^0 \cdot 2n)^3}{n^{-4}}$ $\quad \dfrac{(1 \cdot 2n)^3}{n^{-4}} \quad \dfrac{(2n)^3}{n^{-4}} \quad \dfrac{2^3 n^3}{n^{-4}} = 8n^7$

**Simplify. Your answer should contain only positive exponents.**

25) $\dfrac{2m^0 \cdot (m^0)^4}{2m^2}$

26) $\left(\dfrac{a^0}{2a^4 \cdot a^3}\right)^0$

27) $\left(\dfrac{2vv^3}{2v^3}\right)^3$

28) $\dfrac{(2v)^{-4} \cdot 2v^{-3}}{2v^4}$

29) $\dfrac{n}{n \cdot (m^0)^4}$

30) $\dfrac{x^3y^{-1} \cdot x^3y^2}{(y^4)^4}$

31) $\dfrac{(2x^4y^0)^3 \cdot 2y}{2y^{-2}}$

32) $\dfrac{xy \cdot x^4y^3}{y^4}$