Warm-Up:
Simplify.

1) $(13x^3y^2)(-xy^7)$

$-13x^4y^9$

2) $(-6a^4b^8)^3$

$-216a^{12}b^{24}$

30, 48, 52

30) $A = \pi r^2$

$A = \pi(7x^4)^2$

$A = \pi 49x^8$

$A = 49\pi x^8$ units^2

48) $(xy^3)(y)(x^2y)$

x^3y^5 units^3

52) $I = 2s^2$

$s=1$	$I = 2(1)^2$	$I = 2$
$s=2$	$I = 2(2)^2$	$I = 8$
$s=4$	$I = 2(4)^2$	$I = 32$

$2 + \square = 5$

Section 7-2: Dividing Monomials

$\frac{b^5}{b^2} = \frac{b \cdot b \cdot b \cdot b \cdot b}{b \cdot b} = b^3$

For any number a and integers m and n, $\frac{a^m}{a^n} = a^{m-n}$

Dividing w/ like bases, subtract exponents.

$\left(\frac{y}{m^2}\right)^3 = \frac{y}{m^2} \cdot \frac{y}{m^2} \cdot \frac{y}{m^2} = \frac{y^3}{m^6}$

For any number a and b and integers m, $\left(\frac{a}{b}\right)^m = \frac{a^m}{b^m}$

Distribute the exponent to both top and bottom.

$\frac{3^7}{3^7} = 3^0$

$\frac{3^7}{3^7} = 1$

$3^0 = 1$

For any number a, $a^0 = 1$.

Any number to the zero power is one.

Do #1-5 on pg. 367.

1) 2^4 2^3 2^2 2^1 2^0 2^{-1} 2^{-2} 2^{-3} 2^{-4}

16 8 4 2 1 ½ ¼ ⅛ 1/16

$\frac{1}{2^1}$ $\frac{1}{2^2}$ $\frac{1}{2^3}$ $\frac{1}{2^4}$

2) reciprocals

3) $5^{-1} = \frac{1}{5}$

4) $5^0 = 1$

5) 0^0 undefined

$\frac{0^7}{0^7} = 0^0$

For any nonzero number a and integer n, $a^{-n} = \frac{1}{a^n}$ and $\frac{1}{a^{-n}} = a^n$

Negative exponents

- Take the reciprocal of the base and the exponent becomes positive.

Examples:
Simplify.

1) $\frac{x^7y^{12}}{x^6y^3}$ xy^9

2) $\left(\frac{4c^3d^2}{5}\right)^3$ $\frac{64c^9d^6}{125}$

Examples:
Simplify.

3) $\left(\frac{12m^8n^7}{8m^5n^{10}}\right)^0$ $=1$

4) $\frac{m^0n^3}{n^2}$ $\frac{1}{n}$

Examples:
Simplify.

5) $\dfrac{x^{-4}y^{9}}{z^{-6}}$

$\dfrac{y^{9}z^{6}}{x^{4}}$

6) $\dfrac{75p^{3}q^{-5}}{15p^{5}q^{-4}r^{-8}}$

$\dfrac{5r^{8}}{p^{2}q}$

Examples:
Simplify.

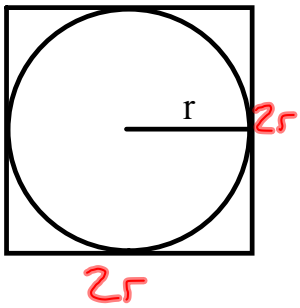
7) $\dfrac{-3x^{-6}y^{5}z}{30x^{4}y^{-2}z^{5}}$

$\dfrac{-1y^{7}}{10x^{10}z^{4}}$

Examples:

8) Write the ratio of the circumference of the circle to the area of the square in simplest form.

A) $\frac{2r}{\pi}$ B) $\frac{2\pi}{r}$ C) $\frac{\pi}{2r}$ D) $\frac{2\pi r}{1}$



$\frac{C \text{ of } \odot}{A \text{ of } \square}$ $\frac{2\pi r}{(2r)^2}$

$\frac{2\pi r}{4r^2} = \frac{\pi}{2r}$

Homework: pg. 371-373 #14-40 even, 50, 56

Section 7-2 Vocab