

Warm-Up:

Simplify.

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

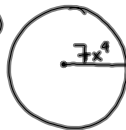
$$-13x^4y^9$$

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

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

30, 48, 52

30)



$$A = \pi r^2$$

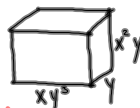
$$A = \pi (7x^4)^2$$

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

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

Units

48)



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

$$x^3y^5 \text{ units}^3$$

52)  $I = 2s^2$

s=1  $I = 2(1)^2$   $I = 2$

s=2  $I = 2(2)^2$   $I = 8$

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



$$2 + \boxed{\text{shaded square}} = 5$$

## Section 7-2: Dividing Monomials

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

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)  $2^4 \quad 2^3 \quad 2^2 \quad 2^1 \quad 2^0 \quad 2^{-1} \quad 2^{-2} \quad 2^{-3} \quad 2^{-4}$   
 $16 \quad 8 \quad 4 \quad 2 \quad 1 \quad \frac{1}{2} \quad \frac{1}{4} \quad \frac{1}{8} \quad \frac{1}{16}$

2) reciprocals  $\frac{1}{2^1} \quad \frac{1}{2^2} \quad \frac{1}{2^3} \quad \frac{1}{2^4}$

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

$\frac{0^2}{0^2} = 0^0$

4)  $5^0 = 1$

5)  $0^0$  undefined

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

$xy^9$

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

$\frac{64c^9 d^6}{125}$

Examples:

Simplify.

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

$= 1$

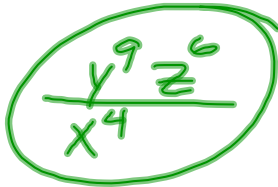
4)  $\frac{\cancel{m}^1 n^3}{n^2}$

$n$

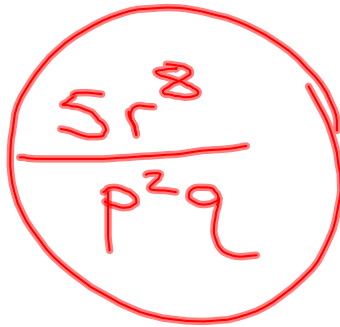
Examples:

Simplify.

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


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

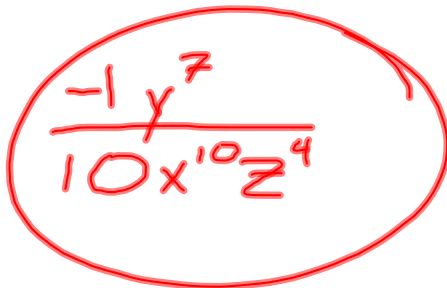
6)  $\frac{75p^3q^{-5}}{15p^5q^{-4}r^{-8}}$


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

Examples:

Simplify.

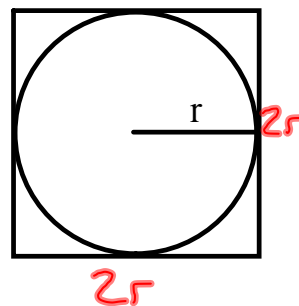
7)  $\frac{-3x^{-6}y^5z}{30x^4y^{-2}z^5}$


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

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)  $\frac{2\pi r}{1}$



$$\frac{\text{C of } \bigcirc}{\text{A of } \square} = \frac{2\pi r}{(2r)^2} = \frac{2\pi r}{4r^2} = \frac{\pi}{2r}$$

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

Section 7-2 Vocab