

Homework Questions?

$$x^4 \times x^3 =$$

$$2x^4 \cdot 3x^3 = 6x^7$$

$$-8x^3 \cdot -2x = 16x^4$$

$$\frac{-16x^4}{-2x^2} = 8x^2$$

$$\frac{-15x^4}{3x} = -5x^3$$

$$(x^3)^2 = x^{3 \times 2} =$$

$$(x^2)^3 = x^6$$

$$(2x^2)^3 = 2^3 x^{2 \times 3}$$

$$= 8x^6$$

$$(3x^4y^2)^2 = 3^2 x^{4 \times 2} y^{2 \times 2}$$

$$= 9x^8y^4$$

$$\frac{(-2x^2y^4)^3}{4x^3y} = \frac{-8x^6y^{12}}{4x^3y}$$

$$= -2x^3y^{11}$$

$$\frac{(3x^2y^4)^3}{(9x^2y^2)^2} = \frac{27x^6y^{12}}{81x^4y^4}$$

$$= \frac{1x^2y^8}{3}$$

$$x^{-1}$$

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

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

$$\frac{x^3}{x^5} = x^{-2} = \frac{1}{x^2}$$

$$\frac{(2x^2y^1)^3}{3x^4y^5} = \frac{8x^6y^3}{3x^4y^5}$$

$$= \frac{8x^2y^{-2}}{3}$$

$$= \frac{8x^2}{3y^2}$$

$$\frac{(3x^2y^4)^2}{9x^4y^{12}} = \frac{9x^4y^8}{9x^4y^{12}}$$

$$= x^0y^{-4}$$

$$= \frac{1}{y^4}$$

Quiz

Rewrite using radicals

$$32^{\frac{1}{5}}$$
$$= \left(\sqrt[5]{32} \right)^1$$

$$= 2$$

$$8^{\frac{4}{3}}$$
$$= \left(\sqrt[3]{8} \right)^4$$

$$= 2^4$$

$$= 16$$

Remember MSIP assignment: p.371 #1-12 -- Due Tuesday

6.5 RATIONAL EXPONENTS

1. Rewrite each using radicals and evaluate with ~~calculator~~ a calculator.

a)	b)	c)	d)
$49^{\frac{1}{2}} =$	$(-64)^{\frac{1}{3}} =$	$32^{\frac{4}{5}} =$	$0.04^{\frac{3}{2}} =$
$= \sqrt[2]{49} \checkmark$	$\sqrt[3]{-64} \checkmark$	$(\sqrt[5]{32})^4 \checkmark$	$= (\sqrt[2]{0.04})^3 \checkmark$
$= 7 \checkmark$	$= -4 \checkmark$	$= 2^4 \checkmark$	$= (0.2)^3 \checkmark$
		$= 16 \checkmark$	$= 0.008 \checkmark$

2. Rewrite each using rational exponents.

a)	b)	c)
$\sqrt[2]{16} =$	$\sqrt[3]{-27} =$	$\sqrt[4]{81} =$
$= 16^{\frac{1}{2}}$	$= (-27)^{\frac{1}{3}}$	$= 81^{\frac{1}{4}}$

3. Solve for x. Assume x is positive.

$$a) x^4 = 16$$

$$x = \sqrt[4]{16}$$

$$= 2$$

$$x^2 = 4$$

$$x = \sqrt{4}$$

$$b) x^{\frac{1}{4}} = 2$$

$$\sqrt[4]{x} = 2$$

$$\rightarrow x = 2^4$$

$$x = 16$$

$$b) x^{\frac{1}{4}} = 2$$

$$x = 2^{\frac{4}{1}}$$

$$x = 2^4$$

$$x = 16$$

$$c) x^{\frac{3}{2}} = 27$$

$$\rightarrow x = 27^{\frac{2}{3}}$$

$$x = (\sqrt[3]{27})^2$$

$$x = 3^2$$

$$x = 9$$

4. Under annual compounding a principal of \$700 grows to \$900 in 5 years. Determine the annual interest rate.

Use the formula: $A = P(1 + i)^n$

in the formula, A is the amount in the bank, P is the principal, i is the interest rate and n is the number of years.

$$900 = 700(1 + i)^5$$

$$\frac{900}{700} = (1 + i)^5$$

$$\left(\frac{900}{700}\right)^{\frac{1}{5}} = (1 + i)$$

$$1.0515 = 1 + i$$

$$1.0515 - 1 = i$$

$$0.0515 \doteq i$$

\therefore The interest rate is approximately 5.15%.

Homework: p. 376 #1-4, 6, 7, 9, 10 p. 78 #16
Then MSIP assignment.

p. 371 #1-12
Due Wed