16. Michelle will load and unload the dishwasher ever day of the week. In return her parents will pay her 2 cents for the first week, and twice as much as the previous week thereafter. Use the expression 2^w to determine her weekly rate of pay, where w represents the number of weeks. How much will she earn, in dollars, in week 7, week 25? [Value 2]

2 W = # & well 27 = 128 + 4.28 23554432

Section 2.4

Exponent Laws I

Write each expression as a product [Repeated multiplication] and then evaluate:

munipheadon and then evaluate.			Single
1) 22 22	Product[repeated multiplication]	Evaluate	Power
1) 3 ² x 3 ²	3x3 x 3 x 3	81	34
(2) $(2^{2}$ (2^{5})	2x2x2x2x2x2x2x2	138	ລີ
3 (-5)° x (-5)°	-5x-5 x-5x-5x-5	15625	(-5)6
THE REPORT OF THE PARTY OF THE			

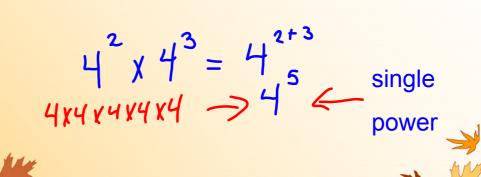
Do you notice anything???

Exponent Law for a Product of Powers

To multiply powers with the same base, add the exponents.

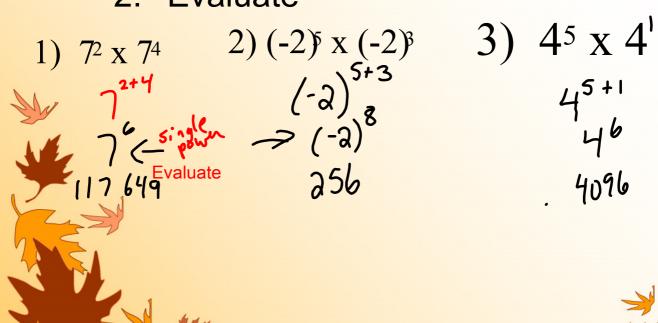
$$a^m \times a^n = a^{m+n}$$

*** must be the same base ***

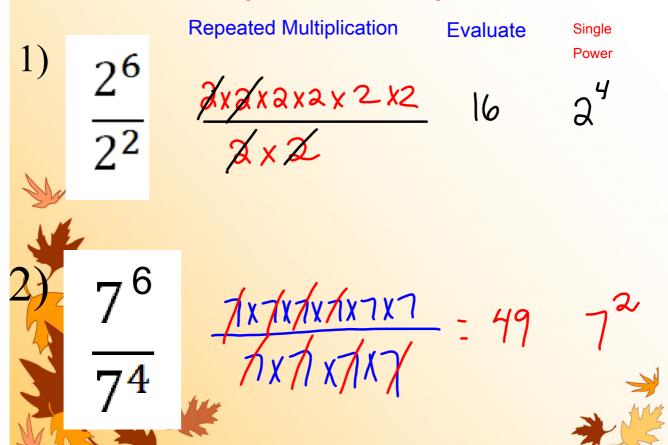


IT'S THE LAW

- Write as a single power.
- 2. Evaluate



Write as a repeated multiplication



$$\frac{(-5)^{7}}{(-5)^{3}} = \frac{(x)(-x)(-x)(-x)(-x)(-x)(-x)}{(-5)^{4}}$$

$$\frac{(-5)^{7}}{(-5)^{3}} = \frac{(x)(-x)(-x)(-x)(-x)(-x)}{(-x)(-x)(-x)(-x)}$$

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

$$\frac{(-4)^{2}}{(-4)^{2}} = \frac{(-4)x(-4)}{(-4)x(-4)} = \frac{(-4)^{2}}{(-4)x(-4)}$$

Exponent Law for a Quotient of Powers [dividing]

To divide powers with the same base, subtract the exponents.

$$a^{m} \div a^{n} = a^{m-n}$$



The base must be the same! ***

$$5^{4} : 5^{3} : 5^{4-3} : 5^{5}$$
 $5^{5} : 5^{5-3} : 5^{3} : 5^{5}$

Express as a single power then evaluate

a)
$$\frac{5}{5^{2}} = 5^{8-2}$$
) $\frac{(-2)^{3}}{(-2)^{0}} = \frac{(-2)^{3-0}}{(-2)^{0}}$ $\frac{(-2)^{3}}{(-2)^{0}} = \frac{(-2)^{3}}{(-2)^{0}} = \frac{(-2)^{3}}{(-2)^{0}}$

Express as a single power.

b)
$$(-4)^{8} \div (-4)^{3} \times (-4)^{2} = (-4)^{8-3+2}$$

 $(-4)^{7}$

Express as a single power:

1.
$$3^4 \times 3^{6} + 3^2$$

2.
$$\frac{3^8 \times 3^9 \times 3^1}{3^4 \times 3^2}$$

$$\frac{3^{8+9+1}}{3^{4+2}}$$

$$\frac{3^{18}}{3^6}$$

$$3^{12}$$

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Questions 4, 5, 7,8

#4. #5.a)
$$4^{5}$$
; 4^{3}
a) 5^{5} x 5 4
 5^{5} x 5 4
 5^{5} x 5 4
 4^{7} 4^{8} a) 3^{4} x 3^{9} ÷ 3^{11} 3^{47} 9 - 11^{9}