

# Chapter #7

October-30-13  
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## 7.1 Multiplying & Dividing Monomials

- A monomial has only 1 term ex. 5,  $2x$ ,  $3x^2$

### MULTIPLICATION

#### METHOD 1

1. multiply the numerical coefficients (# in front of letter)
2. multiply the variables (letter)

↳ ADD the exponents

\*RECALL: exponent rules

↳ add the exponents when multiplying

↳ base must be the same

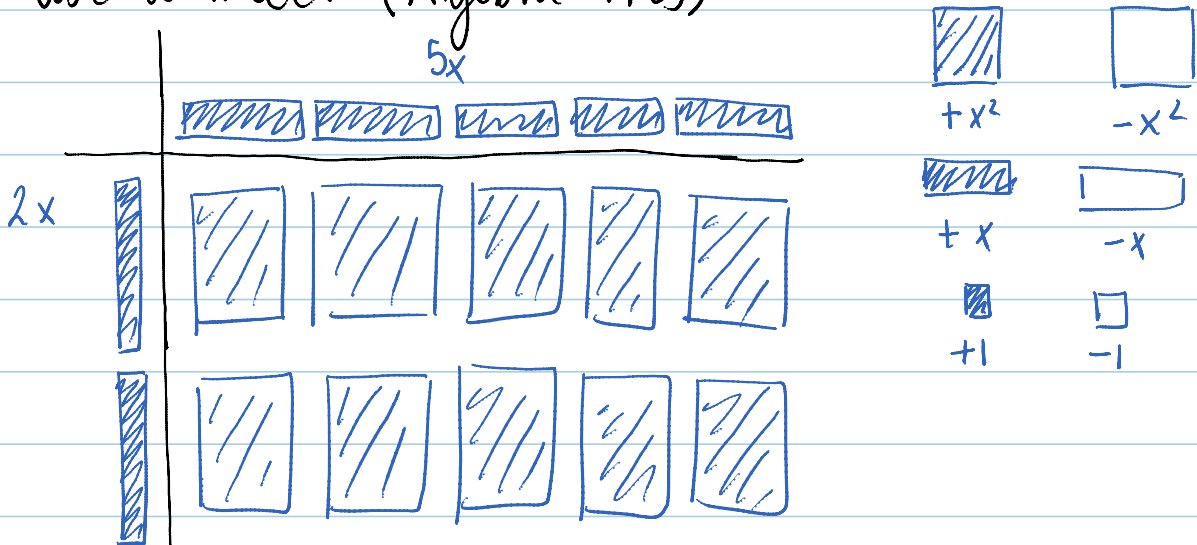
$$3^3 \times 3^5 = 3^{3+5} = 3^8$$

ex. #1  $(5x)(2x)$  or  $5x \times 2x$  or  $5x \cdot 2x$

$$= (5)(2)(x^1)(x^1)$$
$$= 10x^2$$

#### METHOD 2

- use a model (Algebra Tiles)



Ex. #2

$$(a.) (3a)(4b^3) \\ = 12ab^3$$

$$(b.) -1x^2(2xy) \\ \Rightarrow -1 \times 2 = -2 \\ \Rightarrow (x^2)(x) = x^3 \\ \Rightarrow y = y \\ = -2x^3y$$

$$(c.) -2y^3(4y^2) \\ \Rightarrow (-2)(4) = -8 \\ \Rightarrow (y^3)(y^2) = y^5 \\ = -8y^5$$

$$(d.) (2x^2y)(-3xy) \\ = -6x^3y^2$$

$$(e.) (x^3)(-3xy^3)(4y) \\ = -12x^4y^4$$

$$(f.) (-2a^3bc^2)(-5ac^4y^2) \\ = 10a^4bc^6y^2$$

## DIVISION

### METHOD 1

1. divide numerical coefficients
2. divide like variables

↳ subtract exponents

RECALL: EXPONENT RULES

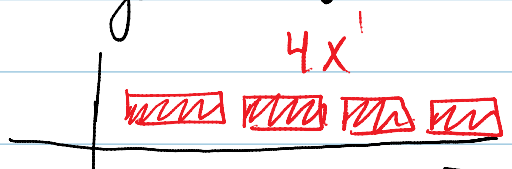
↳ subtract exponents with the same base

$$4^5 \div 4^3 = 4^{5-3} = 4^2$$

$$\text{or} \\ \frac{4^5}{4^3} = 4^{5-3} = 4^2$$

### METHOD 2

↳ use algebra tiles



$$\boxed{2}$$

$$\boxed{11}$$

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$$\frac{8x^2}{2x} = 4x^1$$

Ex #2

(a)  $16y \div 4y$   
 $= 4$   
 $= y^{1-1} = y^0 = 1$   
 $= 4$

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(b)  $-12abc \div -2bc$   
 $= 6a$

(c)  $18x^5y^2 \div -6x^2y^1$   
 $= -3x^3y$

(d)  $\frac{21x^5yz^2}{-7xyz}$

(e)  $\frac{10m^8n^5}{5m^3n^2}$

$\Rightarrow \frac{21}{-7} = -3$   
 $\Rightarrow \frac{x^5}{x^1} = x^4$   
 $\Rightarrow \frac{y^1}{y^1} = y^0 = 1$   
 $\Rightarrow \frac{z^2}{z^1} = z^1$

$\Rightarrow 2m^5n^3 \checkmark$

$$\Rightarrow \frac{z^2}{z^1} = z^1$$

$$= \boxed{-3x^4z}$$

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