Algebra I BE

Thursday 1-5-12

Simplify:

① $\frac{237}{3}$ ② $\frac{576}{9}$

* From 2008/2009 ACT Practice Test:

* ③ Find the slope of the line through $(-5,2), (6,7)$

* ④ Solve: $3(x+2) > 4(x-3)$

- fresh start
- supplies/on time
- prompt redos
- neat, labeled, properly shown work

Divisibility Rule for 3 and 9

You already know the divisibility rule for 2, 5, and 10...

÷ by	if
2	last digit is even which means in ends in 0, 2, 4, 6, 8
5	last digit is 0 or 5
10	last digit is 0

3	sum (add) of all the digits is ÷ by 3

(Ex) 237 ⇒ sum is 12 which is ÷ by 3
12 so 237 is ÷ by 3

9	sum of all the digits is ÷ by 9

(Ex) 576 ⇒ sum is 18 which is ÷ by 9
18 so 576 is ÷ by 9

RECALL ⇒ Ch. 8-1 & 8-2

⇒ MULTIPLYING & DIVIDING MONOMIALS

- A NUMBER,
- A VARIABLE,
- THE PRODUCT OF A NUMBER AND ONE OR MORE VARIABLES

⇒ TOOL: THE 6 EXPONENT RULES

① MR $a^N \cdot a^m = a^{N+m}$

② DR $\frac{a^N}{a^m} = a^{N-m}$

③ ↳ $\frac{a^m}{a^m} = 1 = a^{m-m} = a^0 \therefore a^0 = 1$ ZER

④ ↳ $a^{-N} = \frac{1}{a^N}$ or $\frac{1}{a^{-N}} = a^N$ NER

⑤ PPR $(a^N)^m = a^{N \cdot m}$

⑥ GPR $(ab)^N = a^N b^N$ or $\left(\frac{a}{b}\right)^N = \frac{a^N}{b^N}$

(EX) $\left(\frac{6k^3}{7Np^4}\right)^2 = \frac{36k^6}{49N^2p^8}$

(EX) $5^{-2} = \frac{1}{25}$

RECALL ⇒ Ch. 8-3, POLYNOMIALS

↓

ONE or more MONOMIALS being added or subtracted

Degree of a MONOMIAL ⇒ SUM OF THE EXPONENTS of its VARIABLES

Degree of a POLYNOMIAL ⇒ the degree of the highest degree MONOMIAL in the polynomial

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POLYNOMIALS are NORMALLY ordered in descending order by degree:

(EX) $5x^3 - 2x^2 + x - 3$

↑ degree 3 ↑ degree 2 ↑ degree 1 ↑ degree 0

LINEAR EQUATIONS ($y = mx + b$) are 1st degree polynomials

↑ CONSTANT ↑ CO-STANT

You already know how to add and subtract polynomials ⇒ combine like terms

- same variable
- variables have same exponent

$$x^3 + x^3 = 2x^3$$

$$x^3 + x^2 = x^3 + x^2$$

A +1 in front of a polynomial in parentheses is a "get out of parentheses jail free card". A −1 must be distributed.

(EX) $(2x^3+3x+1) - (x^3-2x-4)$

$+1(2x^3+3x+1) \; -1(x^3-2x-4)$

$2x^3 + 3x + 1 \; - x^3 + 2x + 4$

$\boxed{x^3 + 5x + 5}$

Your turn:

$$(3ax^2 - 5x - 3a) - (6a - 8a^2x + 4x)$$

$$3ax^2 - 5x - 3a - 6a + 8a^2x - 4x$$

$$\boxed{3ax^2 + 8a^2x - 9x - 9a}$$

✓ Ch-8-5 Adding and Subtracting Polynomials

Ch 8-6 Multiplying a Polynomial by a Monomial

(Ex) $-2x^2(3x^2 - 7x + 10)$

Use DP arrows and MR for exponents

$$-2x^2(3x^2 - 7x + 10)$$

$$\boxed{-6x^4 + 14x^3 - 20x^2}$$

Simplify

Ex $4(3d^2+5d)-d(d^2-7d+12)$

$4(3d^2+5d)-d(d^2-7d+12)$

$12d^2 + 20d - d^3 + 7d^2 - 12d$

$19d^2 + 8d - d^3$

$\boxed{-d^3 + 19d^2 + 8d}$ descending order by degree

- Pg 441 # 12-22 evens
  # 30
- Pg 446-448 # 15, # 22, # 26, # 34
  # 38, # 62