

BE - Algebra I TUESDAY 8-19-08

① $\frac{2}{5} \cdot \frac{6}{7}$

② $\frac{5}{8} \cdot \frac{5}{9}$

③ $\left(\frac{3}{4}\right)^2$

④ $\left(\frac{1}{2}\right)^3$

⑤ $X = 4 \quad Y = 3 \quad Z = 2$

EVALUATE: $2(X^2 - Y) + Z^2$

⑥ NAME EACH
PROPERTY OF
EQUALITY

Ⓐ If $a = b$
then $b = a$

Ⓑ if $a = b$, you
can use b
in place of a

⑤ $X = 4 \quad Y = 3 \quad Z = 2$

$2(X^2 - Y) + Z^2$

$2[(4)^2 - (3)] + (2)^2$

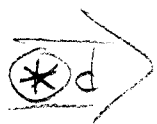
$2[16 - 3] + 2^2$

$2[13] + 2^2$

$2[13] + 4 = 26 + 4 = \boxed{30}$

• Homework review Pg. 13 # 10-14

⑩ 40 ⑪ 160 ⑫ 1 ⑬ $20.00 + 2 \cdot 9.95$ ⑭ \$39.90



Like
Terms

Same variables AND each
variable has the same exponent.
You can only combine (+ or -)
like terms.

This is

A

biggie!!

Note: fractions are like terms if
they have the same
denominator

$$\text{EX) } 2x + x = 3x$$

$$5x^2 - 2x^2 = 3x^2$$

$$6x + y = 6x + y$$

$$6x + 8 = 6x + 8$$

You cannot combine
Numbers and variables!!

$$3xyz + 4xyz = 7xyz$$

$$\frac{1}{x} + \frac{1}{x} = \frac{2}{x}$$

$$3x^2 + 4x = 3x^2 + 4x$$

$$2x^2 + x + 5x^2 + 5x = 7x^2 + 6x$$

$$x + 1 = x + 1$$

$$x + x = 2x$$

⑧d Distributive Property For Any numbers a, b, c
 $a(b+c) = ab+bc$

Technically, this is the "Distributive Property of Multiplication over Addition"

See if it is true for a simple example.

Use PEMDAS to evaluate $4(3+5)$

$$\Rightarrow 4(8) = \boxed{32}$$

Use the DP to evaluate $4(3+5)$

⑧m Use $\left\{ \begin{array}{l} \text{EACH ARROW} \\ \text{IS ONE MULTIPLICATION} \end{array} \right.$

$$\Rightarrow 4(3+5)$$

$$12 + 20 = \boxed{32} \checkmark$$

I have shown you some MENTAL MATH tricks that make some problems easier, most of the time these tricks are based on the DP: ex) $8 \cdot 64$

$$\Rightarrow 8(60+4) \text{ MENTAL MATH!}$$

$$= 480 + 32 = \boxed{512}$$

So is the DP simply a convenience?
 Not in Algebra, because we are often,
 often, often, often⁵, dealing with unlike
 terms in parentheses.

(*)M
 "PARENTHESES
 JAIL"

$$5(2x + 3) + 4x - 6$$

↑↑

the $2x+3$ terms ARE NOT LIKE terms,
 so you CANNOT CONTINUE WITHOUT THE DP

$$5(2x+3) + 4x - 6$$

$$10x + 15 + 4x - 6$$

$$\boxed{14x + 9}$$

↑↑

THIS is now the ORIGINAL
 Algebraic Expression in Simplist Terms

⇒ NO LIKE TERMS

⇒ NO PARENTHESES

NOTE

You can multiply
 numbers ARE
 VARIABLES SINCE

$$5 \cdot 2x$$

$$= 2x + 2x + 2x + 2x + 2x$$

Like terms

(*)d

Since the order of multiplication does NOT MATTER, you may see THIS:

$$(x+2)3 \Rightarrow (x+2)3 = \boxed{3x+6}$$

Even mixed fractions fall to the DP:

$$4\left(3\frac{1}{2}\right) = 4\left(3+\frac{1}{2}\right) = 4\left(3+\frac{1}{2}\right) = 12+2 = \boxed{14}$$

PRACTICE: $8(2x-6)$
(Simplify)

$$5(x+4) - 2x + 8$$

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

$$\frac{1}{5}(10x-5)$$

Use DP
(MENTAL MATH)

$$4(56)$$

$$6(205)$$

Homework: • organize NOTES

• Page 31 # 42 to 50

💡 $x(a+b+c)$ use 3 Arrows