

BE - Algebra I

Thursday 8-25-11

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

① If $a = b$
then $b = a$

② if $a = b$, you
can use b
in place of a

⑤ $X = 4 \quad Y = 3 \quad Z = 2$

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

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

PE(MD)(AS)

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

$2[13] + 2^2$

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

• Homework review Pg. 20 # 57-67 + # 9

⑤⑦ 173 ⑤⑧ 1 ⑤⑨ 50,428 ⑥⑩ $\frac{1}{15}$ ⑥⑪ $\frac{4}{21}$

⑥⑫ $\frac{25}{32}$ ⑥⑬ $\frac{2}{7}$ ⑥⑭ $\frac{16}{143}$ ⑥⑮ $\frac{16}{63}$ ⑥⑯ $\frac{21}{176}$

⑥⑰ $\frac{16}{75}$ ⑥⑱ 8 (use parentheses to substitute) $\xrightarrow{\text{see next pg.}}$

$$\textcircled{9.} \quad \frac{5a^2 + c - 2}{6 + b}$$

$$\begin{aligned} a &= 4 \\ b &= 5 \\ c &= 10 \end{aligned}$$

$$\frac{5(\quad)^2 + (\quad) - 2}{6 + (\quad)}$$

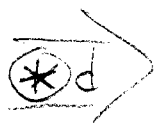
$$\frac{5(4)^2 + (10) - 2}{6 + (5)}$$

→ ONE
LINE
FOR
YOU!

$\vec{PE}(\vec{MD} \times \vec{AS})$

$$\frac{5(16) + 10 - 2}{11} = \frac{80 + 10 - 2}{11}$$

$$= \frac{88}{11} = \boxed{8}$$



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!!

$$3xy^2z + 4xy^2z = 7xy^2z$$

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

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

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

$$x + 1 = x + 1$$

$$x + x = 2x$$

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

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) $8 \cdot 64$

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

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

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 and
 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:

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

PRACTICE: (Simplify)

$$\frac{8(2x-6)}{5(x+4) - 2x + 8}$$

$$\frac{3(x^2+x) + 10x^2}{\frac{1}{5}(10x-5)}$$

Use DP
(MENTAL MATH)

$4(56)$	$6(205)$
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Homework: • organize NOTES

• Page 31 # 42 to 50

💡 $x(\overbrace{a+b+c})$ use 3 Arrows