W-A1 Algebra 1 Week 2 9/13

Variable – letter or characters that substitutes for an unknown value. Could be any value.

Algebraic Expression

$d + 8$

variable

$d = 10$

$10 + 8 = \boxed{18}$

$d + 8 \quad d = 5 \quad 5 + 8 = \boxed{13}$

Math is another language

A number increased by 5

$n + 5$

algebraic expression $\boxed{n + 5}$

algebraic equation

$n + 5 = 10$

A number divided by 9

$b \div 9$ or $\frac{b}{9}$ ← numerator, ← denominator

Operations

⊕ Plus, add, increased by, more than, greater than, altogether, combined, SUM

⊖ Subtract, less than, minus, decreased by, DIFFERENCE

The difference of a number and 12

$b - 12$

5 less than a number (switch order)

$5 - n$ ~~$5 - n$~~ $n - 5$

I II III IV V VI

Take away 2 from 19 (switch order)

$19 - 2$

⊗ Multiply, times, PRODUCT

$x * \circ$ A number times 2

$x * 2$

÷ Divided by, Quotient

$(x-3)$ the quantity of a number minus 3

1.) A number increased by 5 → $n+5$

2.) 8 subtracted From a number → switch order → $n-8$

coefficient & variable: $5a$

3.) 3 less than 5 times a number

Switch order

$5a$

$5a-3$

4.) A number multiplied by 12 is 84

$12b = 84$

5.) 7 less than n is 22

Switch

$n-7=22$

6.) The product of 2 and a number

$2*v$ or $2v$

7.) 10 greater than the quotient of a number and 15.

$10+n\div 15$

$10+\frac{n}{15}$

$\frac{n}{15}+10$

$10+n/15$

1-2 Order of Operations

PEMDAS

P parenthesis

E exponents

MD equally important Mult/Div L→R

AS Add/Sub L→R

$2 + 3 * 4$

If order doesn't matter

~~$2 + 3 * 4$~~

~~$5 * 4 = 20$~~

If order does matter

PEMDAS

$2 + 3 * 4$

$2 + 12 = 14$

$2 + 3 * 4$

↓

Multiplication — series addition

$2 + 3 + 3 + 3 + 3$

$5 + 3 = 8 \quad 8 + 3 = 11 \quad 11 + 3 = 14$

$2 + 3 * 4^2$

$2 + 3 * 4 * 4$

P
E
MD
AS

$2 + 3 * 4 * 4$

Exponents — series multiplication

$2 + (3 + 3 + 3 + 3) * 4$

$2 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3$

$8 \quad 11 \quad 14 \quad 17 \quad 20 \quad 23 \quad 26 \quad 29 \quad 32 \quad 35 \quad 38 \quad 41 \quad 44 \quad 47 \quad 50$

$2 + 3 * 4^2$

$2 + 3 * 16$

$2 + 48 = 50$

P
E
MD
AS

$48 \div 12 * 3$

↓

$48 * \frac{1}{12} * 3$

$4 * 3 = 12$

Division is a lie

Divisim is inverse multiplicatim

P
E
MD
AS

$48 \div 12 * 3$

$4 * 3 = 12$

$20 - 8 + 4$

$12 + 4 = 16$

subtractim is inverse addition

P
E
MD/DM
AS/SA

$2 \cdot (27 - 13 \cdot 2)$

$2 \cdot (27 - 26)$

$2 \cdot 1 = \boxed{2}$

1.) $50 \div 2 + 15 * 4$

$25 + 15 * 4$

$25 + 60 = \boxed{85}$

2.) $4 + 8 \div 2 + 6 * 3$

$4 + 4 + 6 * 3$

$4 + 4 + 18$

$8 + 18 = \boxed{26}$

P
E
MD
AS

3.) $14 + 6 * 2^3 - 8 \div 2^2$

$14 + 6 * 8 - 8 \div 2^2$

$14 + 6 * 8 - 8 \div 4$

$14 + 48 - 8 \div 4$

$14 + 48 - 2$

$62 - 2 = \boxed{60}$

$2^3 \neq 2 * 3$

$2^3 = 2 \cdot 2 \cdot 2$

P
E
MD
AS

4.) $4^2 + 5^2(8-3)$

$4^2 + 5^2(5)$

$16 + 5^2(5)$

$16 + 25(5)$

$16 + 125 = \boxed{141}$