Name: _Key_

Foundations for College Algebra

Quiz #3

1. Given that $a \cdot b = 1$, what two <u>distinct</u> things (in your own words) can be stated about the result of the product of "1"?

① a & b are multiplicative inverses of each other.

② $a = 1$ and $b = 1 \rightarrow 1 \cdot 1 = 1$

both are multiplicative Identities

③ $a \cdot b = \boxed{1} \leftarrow$ the multiplicative Identity

2. State the **Associative Property (tool) for Multiplication** and give an example of its use.

$a(bc) = (ab)c$

e.g. $3(xy) = (3x)y$

$3xy = 3xy$

3. Suppose that $3(5\$ - 3) + 4 = 24$ and solving for $\$$ we get the following lines. What "tool" generated line "c" from the prior line "b"?

a.) $15\$ - 9 + 4 = 24$
b.) $15\$ - 5 = 25$
c.) $15\$ = 30$ _____Additive Inverse_____
d.) $\$ = 2$

4.) List all seven Algebraic Power Tools including their Algebraic representations.

① Commutative
$$a + b = b + a \quad \text{or} \quad ab = ba$$

② Associative
$$a + (b + c) = (a + b) + c \quad \text{or} \quad a(bc) = (ab)c$$

③ Distributive
$$a(b + c) = ab + ac$$

④ Additive Inverse
$$a + (-a) = 0$$

⑤ Multiplicative Inverse
$$a \cdot \frac{1}{a} = 1$$

⑥ Additive Identity
$$a + 0 = a$$

⑦ Multiplicative Identity
$$a \cdot 1 = a$$

5.) What "tool" combines both multiplication and addition? For a bonus, why is this tool important?

Distributive

Importance

① used to clear parenthesis

② used to factor "out" a common term.