

Mohammed Kaabar Properties  
of  
Real  
Number

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\* There are several properties for real numbers

For any real numbers  $x, y, z$ , then we have:

① Closure of addition

$x + y$  is a real number

② Closure of multiplication

$x \cdot y$  is a real number

③ Commutative law of Addition

$$x + y = y + x$$

④ Associative law of Multiplication

$$x(y + z) = x \cdot y + x \cdot z$$

⑤ Associative law of Addition

$$(x + y) + z = x + (y + z)$$

⑥ Additive Identity

$$x + 0 = x$$

⑦ Commutative law of Multiplication  $x \cdot y = y \cdot x$

⑧ Multiplicative Identity

$$x \cdot 1 = x$$

\* Order of Operations

Step 1: Powers (Exponents)

Step 2:  $\xrightarrow{\text{left}}$  Multiplication & Division

Step 3:  $\xrightarrow{\text{left}}$  Addition & Subtraction

Ex 1 Evaluate:  $\frac{2^2(10+5)}{3}$

Solution:  $\frac{2^2(15)}{3} = \frac{4(15)}{3}$

$$= \frac{60}{3} = \frac{3 \times 20}{3} = \boxed{20}$$

$$\begin{array}{r} 2 \\ 15 \\ \underline{4} \\ 60 \end{array}$$