Lesson: Orders of Operations

BEDMAS is an acronym we can use to remember the order in which mathematical operations are to be performed.

BEDMAS

B – Brackets

E – Exponents

D – Division
M – Multiplication *

A – Addition
S – Subtraction **

*division & multiplication in the order they appear from left to right

**addition & subtraction in the order they appear from left to right

Example 1: 4 –(5 – 6) =
$= 4 - (-1)$
$= 4 + (1)$
$= 5$

Example 2: (3 – 6) ÷ (9 – 10) + (24 – 4) ÷ (–5)
$= (-3) \div (-1) + (20) \div (-5)$
$= (3) + (-4)$
$= -1$
B B

Example 3: 12 – [18 – $(-1)^2$ + 3]
$= 12 - (18 - (+1) + 3)$
$= 12 - (18 - 1 + 3)$
$= 12 - (20)$
$= 12 - 20$
$= -8$

Example 4: 32 ÷ [16 x (–2)] + 20 – (4^2 + 3)
$= 32 \div (-32) + 20 - (16+3)$
$= 32 \div (-32) + 20 - (19)$
$= -1 + 1$
$= 0$

Let's Recap a Little About Exponents…

$2 \times 2 \times 2 \times 2 = 2^4$ (4: exponent (power); 2: base)

Complete the following chart:

Power	Expanded (meaning)	Base	Exponent	Value
2^3	2 x 2 x 2	2	3	8
$(-3)^5$	$(-3)\times(-3)\times(-3)\times(-3)\times(-3)$	(-3)	5	-243
3^3	3 x 3 x 3	3	3	27
$(0.6)^3$	0.6 x 0.6 x 0.6	0.6	3	0.216
$(-9)^2$	$(-9)\times(-9)$	(–9)	2	81
$\left(\frac{2}{5}\right)^3$	$\left(\frac{2}{5}\right)\times\left(\frac{2}{5}\right)\times\left(\frac{2}{5}\right)$	$\frac{2}{5}$	3	$\frac{8}{125}$
$(-1)^2$	$(-1)\times(-1)$	(-1)	2	1
-1^2	-1×1	-1	2	-1

Practice: Order of Operations

a. $(3 - 4) + 5$

$= (-1) + 5$

$= \boxed{+4}$

b. $(-4 + 7) - (2^2 + 2) \div (+3)$

$= (3) - (4+2) \div (3)$

$= (3) - (6) \div (3)$

$= 3 - (2)$

$= \boxed{1}$

c. $3 - 2(3^2 - 7) \times 4 \div 2$

$= 3 - 2(9-7) \times 4 \div 2$

$= 3 - 2(2) \times 4 \div 2$

$= 3 - 16 \div 2$

$= 3 - 8$

$= \boxed{-5}$

d. $-8 \div (-2) - (-3)$

$= (+4) + (3)$

$= \boxed{+7}$

e. $2(4 - 7)^2 + 5 \times 2$

$= 2(-3)^2 + 10$

$= 2(-3)(-3) + 10$

$= 18 + 10$

$= \boxed{28}$

f. $\dfrac{(-6)(-3) - 7(6) + 9}{-3}$

$= \dfrac{18 - 42 + 9}{-3}$

$= \dfrac{-15}{-3}$

$= \boxed{5}$

g. $6 - 12 \div (-3) + 2$

$= 6 + 4 + 2$

$= \boxed{12}$

h. $\dfrac{(-5)(2)(3) - 2}{(-8)(2)}$

$= \dfrac{-30 - 2}{-16}$

$= \dfrac{-32}{-16}$

$= \boxed{2}$

Answers: a. 4, b. 1, c. -5, d. 7, e. 28, f. 5, g. 12, h. 2