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 / Roots

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: $4 - (5 - 6) =$

$= 4 - (-1)$
$= 4 + (1)$
$= \boxed{5}$

Example 2: $(3 - 6) \div (9 - 10) + (24 - 4) \div (-5)$

$= (-3) \div (-1) + (20) \div (-5)$
$= (3) + (-4)$
$= \boxed{-1}$

Example 3: $12 - [18 - (-1)^2 + 3]$

$= 12 - (18 - (+1) + 3)$
$= 12 - (18 - 1 + 3)$
$= 12 - (20)$
$= 12 - 20$
$= \boxed{-8}$

Example 4: $32 \div [16 \times (-2)] + 20 - (4^2 + 3)$

$= 32 \div (-32) + 20 - (16 + 3)$
$= 32 \div (-32) + 20 - (19)$
$= -1 + 1$
$= \boxed{0}$

Let's Recap a Little About Exponents…

$2 \times 2 \times 2 \times 2 = 2^4$ — 4: exponent; 2: base

Complete the following chart:

Power	Expanded	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

Practice:

1. $[-8 + (-9)(3)] \div [(-15) - (20)]$

$= [-8 + (-27)] \div (-15 - 20)$
$= (-8 - 27) \div (-35)$
$= (-35) \div (35)$
$= \boxed{1}$

2. $(36) \div [(-14) + (-11)] + 4$

$= 36 \div (-14 + 11) + 4$
$= 36 \div (-3) + 4$
$= -12 + 4$
$= -8$

3. $\dfrac{5+7}{3-9} = \dfrac{12}{-6}$

$= \boxed{-2}$

4. $\dfrac{9(-9+4)}{[(-1)+2\times 3]} = \dfrac{9(-5)}{(-1+6)}$

$= \dfrac{-45}{5}$
$= \boxed{-9}$

5. $2^3 - 3^2$

$= 8 - 9$
$= \boxed{-1}$

6. $2 \cdot 3 - 4 \cdot 2 + 7$

$= 6 - 8 + 7$
$= \boxed{5}$

7. $5(-1) + 6(-2)$

$= -5 - 12$
$= \boxed{-17}$

8. $(-2)(3) - (-1)(7) - (-2)$

$= -6 - (-7) + 2$
$= -6 + 7 + 2$
$= \boxed{3}$

9. $3 + 2^2 - 16 \cdot 3^2$

$= 3 + 4 - 16 \cdot 9$
$= 3 + 4 - 144$
$= \boxed{-137}$

10. $6 + (3-4) - 2$

$= 6 + (-1) - 2$
$= 6 - 1 - 2$
$= \boxed{3}$

11. $6 + 3 - (4-2)$

$= 6 + 3 - (2)$
$= 6 + 3 - 2$
$= \boxed{7}$

12. $3^2 - 8 \cdot 2 + 7^2 - 35$

$= 9 - \boxed{8 \cdot 2} + 49 - 35$
$= 9 - 16 + 49 - 35$
$= \boxed{7}$

13. $-4(2^3) - 6$

$= -4(8) - 6$
$= -32 - 6$
$= \boxed{-38}$

14. $(8-2)^2$

$= (6)^2$
$= \boxed{36}$

15. $(4-6)^2$

$= (-2)^2$
$= \boxed{4}$

16. $4 - 6^2$

$= 4 - 36$
$= \boxed{-32}$

17. $[32 \div (-4)] \div 2$

$= (-8) \div 2$
$= \boxed{-4}$

18. $32 \div [(-4) \div 2]$

$= 32 \div (-2)$
$= \boxed{-16}$

19. $\dfrac{4-3^2}{8^2+2}$

$= \dfrac{4-9}{64+2}$
$= \dfrac{-5}{65} = \dfrac{-1}{13} \doteq \boxed{-0.08}$

20. $\dfrac{7^2 - 8^2 + 1^3}{2^3 + 3^2 - 2^3} = \dfrac{49 - 64 + 1}{8 + 9 - 8}$

$= \boxed{\dfrac{-14}{9}}$

21. $2(8+3)-4(7+2)$

$=2(11)-4(9)$
$=22-36$
$=\boxed{-14}$

22. $\dfrac{8-4^2+3}{4\cdot 2-3^2+9}$

$=\dfrac{8-16+3}{4\cdot 2-9+9}$
$=\dfrac{-5}{8-9+9}$
$=\dfrac{-5}{8}$
$\doteq -0.625$

23. $\dfrac{(2)3-4(5)+6}{-20\div(-5)\div 8}$

$=\dfrac{6-20+6}{4\div 8}$
$=\dfrac{-8}{0.5}$
$=\boxed{-16}$

24. $5+10-3^2$

$=5+10-9$
$=\boxed{6}$

25. $6\cdot 4+5^2-11$

$=24+25-11$
$=\boxed{38}$

26. $7\cdot(2+3)-21$

$=7(5)-21$
$=35-21$
$=\boxed{14}$

27. $(5+7)\div 2^2$

$=(12)\div 4$
$=\boxed{3}$

28. $5^2-4^2+3\cdot 2$

$=25-16+\boxed{3.2}$
$=25-16+6$
$=\boxed{15}$

29. $(8)9-6^2+4$

$=(8)9-36+4$
$=72-36+4$
$=\boxed{40}$

30. $9^2-(20+11)$

$=81-(31)$
$=81-31$
$=\boxed{50}$

31. $(2+3)\cdot 10^2+5^2$

$=(5)100+25$
$=500+25$
$=\boxed{525}$

32. $3-(30+4)-7^2$

$=3-(34)-49$
$=3-34-49$
$=\boxed{-80}$

33. $(1+5)-5-7-4$

$=(6)-5-7-4$
$=6-5-7-4$
$=\boxed{-10}$

34. $0\text{x}15^2-(400+21)\div 19^2$

$=0\cdot 225-(421)\div 361$
$=0-(421)\div 361$
$\doteq\boxed{-1.7}$

35. $0\text{ x}1^2\text{ x }(59+92)+5$

$=0+5$
$=\boxed{5}$

36. $6(5+0)^2$ $=6(5)^2$

$=6(25)$
$=\boxed{150}$

37. $(7-7)\cdot 33^2\div(45+3)^2$

$=(0)\cdot 33^2\div(48)^2$
$=0\div(48)^2$
$=\boxed{0}$

38. $(233+18)\div 250+3\cdot 33$

$=(251)\div 250+99$
$=1.004+99$
$=100.004$

39. $\dfrac{5\cdot 30}{15}-(3+3)$

$=\dfrac{150}{15}-(6)$
$=10-6$
$=\boxed{4}$

40. $\dfrac{(10+14)\cdot 200}{10^2}$ $=\dfrac{(24)200}{100}$

$=\dfrac{4800}{100}$
$=\boxed{48}$

41. $\dfrac{10\cdot(25+7)}{(5+3)^2}$ $=\dfrac{10(32)}{(8)^2}$

$=\dfrac{320}{64}$
$=\boxed{5}$

42. $\dfrac{25\cdot(6+7)-5^2}{(6+7)^2-19}$ $=\dfrac{25(13)-25}{(13)^2-19}$

$=\dfrac{325-25}{169-19}$
$=\dfrac{300}{150}$
$=\boxed{2}$