Name: _____ Date: _____

Order of Operations

1. Notation

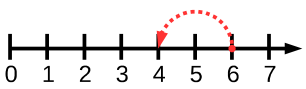
Addition: $9+3=12$ Subtraction: $9-3=6$ Multiplication: $9\times3=27$ or $9\cdot3=27$ or $9(3)=27$

Division: $9\div3=3$ or $\frac{9}{3}=3$ Exponentiation: $9^3=9\times9\times9=729$ Square root: $\sqrt{9}=3$ (since $3^2=9$)

2. Order of Operations (BEDMAS)

Brackets (inside)
Exponents (and roots)
Division/**M**ultiplication (left to right)
Addition/**S**ubtraction (left to right)

3. "By Hand" Evaluation Strategies

Traditional Algorithms	"Friendly Numbers"	Number Line
$\begin{array}{r} {\scriptstyle 1}\\ 16\\ +9\\ \hline 25 \end{array}$	$23+15 = 20+3+10+5$ $= 30+8$ $= 38$	$6-2=4$ 

4. Examples

A. Evaluate $5(6-4)$.
Perform the subtraction inside of the brackets first.

$$5(6-4)=5(2)$$

The brackets indicate multiplication.

$$5(2)=10$$

B. Evaluate $20-3^2$.
Exponentiation comes before subtraction in BEDMAS, so do it first.

$$\begin{aligned} 20-3^2 &= 20-3\times3\\ &= 20-9 \end{aligned}$$

Subtract 9 from 20.

$$20-9=11$$

C. Evaluate $4+2\times5-1$.
Multiplication comes before addition and subtraction, so do it first.

$$4+2\times5-1=4+10-1$$

Perform addition and subtraction left to right.

$$\begin{aligned} 4+10-1 &= 14-1\\ &= 13 \end{aligned}$$