

Order of Operations:

to remember:

Please

Excuse

My

Dear

Aunt

Sally



Parentheses

(all grouping symbols)

$$\{ \}, [], (), \sqrt{\quad}, \sqrt[3]{\quad}$$

$$\sqrt{25} = 5$$

$$\frac{8+6}{4+3} = \frac{14}{7} = 2$$

$$7 + 5(10 - 8 \div 2)$$

$$7 + 5(10 - 4)$$

$$7 + 5 \cdot 6$$

$$7 + 30$$

$$37$$

Exponents

If no exponent is visible:

1) You can treat the sign in front of the number as the sign of the number, ... but, with exponent other than 1, you can *not*.

$$20 - 7 + 2$$

$$13 + 2 = 15$$

2) You can use the rules of multiplication to change from 2 signs to 1 sign,

$$20 + (-7) + 2$$

$$20 - 7 + 2$$

$$13 + 2$$

$$15$$

$$30 - 5^2 + 4$$

$$30 - 25 + 4 = 5 + 4 = 9$$

...but, with exponent other than 1, you can *not*.

$$30 + (-5)^2 + 4$$

$$(-5)(-5)$$

$$30 + 25 + 4$$

$$55 + 4$$

$$59$$

Multiplication or Division

$$28 \div 7 \cdot 2$$

$$4 \cdot 2 = 8$$

$$19 + (-6)^2 \div 4 \cdot 10 - 3^2$$

$$(-6)(-6)$$

$$19 + 36 \div 4 \cdot 10 - 9$$

$$19 + 9 \cdot 10 - 9$$

$$19 + 90 - 9$$

$$109 - 9$$

$$100$$

$$30 - 4(8 - 6 \div 2) + 1$$

$$30 - 4(8 - 3) + 1$$

$$30 - 4 \cdot 5 + 1$$

$$30 - 20 + 1$$

$$10 + 1$$

$$11$$

$$10 - 3 \cdot 2 + 5$$

$$10 - 6 + 5$$

$$4 + 5$$

$$9$$