

Content and Language Objective:

Students will review the order of operations to deepen their understanding of the process that is necessary to solve math problems

Warm - Up

1. $\frac{1}{3} + \frac{3}{2} + \frac{2}{3} - \frac{1}{2}$

$$\frac{2}{6} + \frac{9}{6} + \frac{4}{6} - \frac{3}{6} = \frac{12}{6} = 2$$

2. $\frac{8}{3} \div \frac{5}{9}$

$$\frac{8}{\cancel{3}} \cdot \frac{\cancel{9}^3}{5} = \frac{24}{5}$$

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With a partner, look at the given problem.

IS THERE A DIFFERENCE BETWEEN THESE TWO EXPRESSIONS? DISCUSS WITH YOUR PARTNER.

$$(4 + 6) \bullet 3$$

$$10 \cdot 3$$

$$30$$

$$4 + (6 \bullet 3)$$

$$4 + 18$$

$$22$$

This is why we have the orders of operations rule.

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Order of operations:

1. Evaluate expressions within parentheses or other grouping symbols. () [] { }

2. Evaluate all powers. 4^2 $(4 + 2)^3$

3. Multiply and divide from left to right. $6 \div 3 \bullet 2$ $6 \div 3 \cdot 2$
 $\checkmark 2 \cdot 2 = 4$ $6 \div 6 = 1$

4. Add and subtract from left to right. $7 - 4 + 3$ $7 - 4 + 3$
 $\checkmark 3 + 3 = 6$ $7 - 7 = 0$

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(P) E² M^{*} or D[÷] A⁺ or S⁻
[]
| |

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IMPORTANT!!

BE SURE TO EVALUATE EXPONENTS BEFORE PERFORMING NEGATION.

EXAMPLE:

$$-2^4 = -(2*2*2*2) = -16 \quad \text{but } (-2)^4 = (-2)(-2)(-2)(-2) = 16$$

So be aware of this especially with your calculator because the calculator will do the same method as above.

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$$5 - 3 \bullet 2 - (4 + 5)$$

$$5 - 6 - 9 = -10$$

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$$-(3)(3) \\ -3^2 + \frac{5+7}{2+1}$$

$$-9 + \frac{5+7}{2+1}$$

$$-9 + \frac{12}{3}$$

$$-9 + 4$$

$$\textcircled{-5}$$

$$(-3)(-3) \\ (-3)^2 + \frac{5+7}{2+1}$$

$$9 + \frac{5+7}{2+1}$$

$$9 + \frac{12}{3}$$

$$9 + 4 = 13$$



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$$4^3 - 5(2 - 6 \bullet 2)$$

$$4^3 - 5(2 - 12)$$

$$4^3 - 5(-10)$$

$$64 - 5(-10)$$

$$64 - (-50)$$

$$64 + 50$$

$$(114)$$

