

Your Name

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Notes

# The Order of Operations

**PEMDAS** The order in which you communicate and know how to perform the math operations ( $\div \times - + ^2$ ) in an expression

**1st P** Parentheses- if there are parentheses, then PEMDAS starts over inside

$$3 - (4 + 3 \times 2)$$

$$3 - (4 + 6)$$

$$3 - (10) \rightarrow -7$$

**E** Exponents- if there are exponents (small numbers in the top right corner) they apply only to what is directly to their left, and mean that base is multiplied to itself that many times.

$$2(4)^3 \neq 4 \cdot 3$$

$$2(4 \cdot 4 \cdot 4)$$

$$2(16 \cdot 4)$$

$$2(64) \rightarrow 128$$

$$-1(5-3)^2 + 7$$

$$-1(2)^2 + 7$$

$$-1(4) + 7$$

$$-4 + 7$$

**MD** Multiplication/Division- These are at the same level and whichever is first on the left is done first. If numbers, letters or parentheses have nothing between them they are multiplied.

Fractions are division.

$$3 \times 4 \div 2 \times 5$$

Wrong:  $3 \cdot 4 \div 2 \cdot 5$

$$12 \div 10$$

$$1.2$$

$$12 \div 2 \cdot 5$$

$$6 \cdot 5$$

$$30$$

**AS** Addition/Subtraction- These are at the same level and whichever is first on the left is done first. Subtraction is adding a negative number, when seen as this, you can switch up the order. Since these are the lowest level, they separate the others allowing you to do multiple steps in one line.

$$-3 + 2 - 7 - 9 + 8$$

$$-1 - 7 - 9 + 8$$

$$-8 - 9 + 8$$

$$-17 + 8$$

$$-9$$

$$-3 + 2 - 7 - 9 + 8$$

$$-3 + 2 + -7 + -9 + 8$$

$$-3 + -7 + 2 + 8 + -9$$

$$-10 + 10 + -9$$

$$-9$$

$$2(3)^2 + 4 \times 5 + 7$$

$$2(9) + 20 + 7$$

$$18 + 27$$

$$45$$

$$2(3)^2 + 4 \times 5 + 7$$

$$2(9) + 4 \cdot 5 + 7$$

$$18 + 20 + 7$$

$$38 + 7$$

$$45$$