

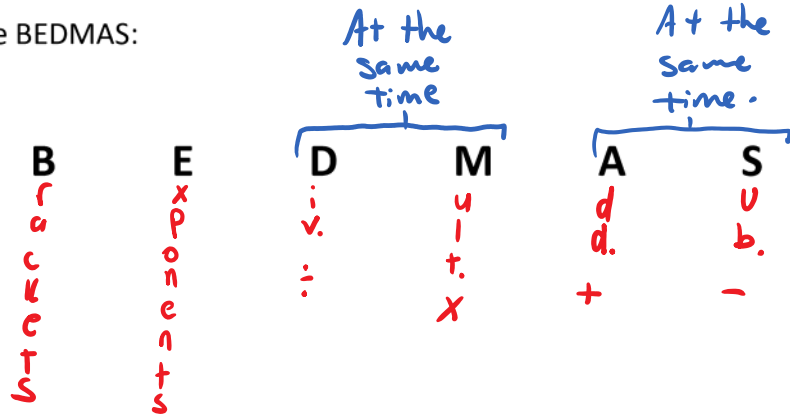
# 3.6 - Order of Operations with Rational Numbers

September 4, 2019 4:07 PM

## Math 9

### 3.6: Order of Operations with Rational Numbers

As always, we use BEDMAS:



#### Example 1: Order of Operations with Decimals

a)  $(-0.8) + (1.2) / (-0.3) \times 1.5$

$= (-0.8) - 4 \times 1.5$

$= (-0.8) - 6$

$= (-0.8) + (-6)$   
 $= -6.8$

$3^2 \neq 3 \times 2 = 6 \text{ ;}$   
 $3^2 = 3 \cdot 3 = 9 \text{ ;}$

#### Example 2: Order of Operations with Fractions

a)  $\left(\frac{3}{4}\right)^2 \div \frac{1}{2} + \frac{3}{8} =$

$\left(\frac{3}{4}\right)^2 = \frac{3}{4} \times \frac{3}{4} = \frac{3 \times 3}{4 \times 4} = \frac{9}{16}$

$= \frac{9}{16} \div \frac{1}{2} + \frac{3}{8}$

$= \frac{9}{16} \times \frac{2}{1} + \frac{3}{8}$

$= \frac{9 \times 2}{16 \times 1} + \frac{3}{8}$   
 $= \frac{18}{16} + \frac{3}{8}$

$= \frac{9}{8} + \frac{3}{8}$

common denominator ;)

$= \frac{9+3}{8}$   
 $= \frac{12}{8}$   
 $= \frac{3}{2}$

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$$b) \left(\frac{-1}{2}\right)\left(\frac{-1}{2}\right) - \left(\frac{-2}{3}\right) \div \left[ \frac{1}{3} + \left(\frac{-3}{12}\right) \right]^2 = \frac{4}{12} + \frac{(-3)}{12} = \frac{1}{12}$$

Not common :-

$$= \left(\frac{-1}{2}\right)\left(\frac{-1}{2}\right) - \left(\frac{-2}{3}\right) \div \left(\frac{1}{12}\right)^2 \rightarrow \left(\frac{1}{12}\right)^2 = \left(\frac{1}{12}\right)\left(\frac{1}{12}\right) = \frac{1}{144}$$

$$= \left(\frac{-1}{2}\right)\left(\frac{-1}{2}\right) - \left(\frac{-2}{3}\right) \div \frac{1}{144}$$

$$= \left(\frac{1}{4}\right) - \left(\frac{-2}{3}\right) \div \frac{1}{144}$$

$$= \left(\frac{1}{4}\right) - \left(\frac{-2}{3}\right) \times \frac{144}{1}$$

$$= \left(\frac{1}{4}\right) - \frac{(-2) \cdot 144}{3 \cdot 1}$$

$$= \frac{1}{4} - \left(\frac{-288}{3 \cdot 1}\right)$$

Common denominator is 12

$$\begin{aligned} & \frac{3}{12} - \frac{(-1152)}{12} \\ & = \frac{3 - (-1152)}{12} \\ & = \frac{3 + 1152}{12} \\ & = \boxed{\frac{1155}{12}} \end{aligned}$$



Textbook Assignment: Pg. 140 # 4, 7, 10, 11, 17