

Feb. 7, 2018

Warmup

a)  $\frac{3}{4} + \frac{1}{2} - \frac{1}{3}$

b)  $\frac{200}{300} \times \frac{14}{7} \times \frac{200}{500}$

bring to lowest terms!

$= \frac{2}{3} \times \frac{2}{1} \times \frac{2}{5} = \boxed{\frac{8}{15}}$

$$\therefore \frac{3}{4} + \frac{1}{2} - \frac{1}{3}$$

$$= \frac{3}{4} + \frac{2}{4} - \frac{1}{3}$$

$$= \frac{5}{4} - \frac{1}{3}$$

$$= \frac{15}{12} - \frac{4}{12}$$

$$= \boxed{\frac{11}{12}}$$

$$1h) \quad \frac{45}{18} - \frac{200}{100}$$

$$= \frac{5}{2} - \frac{2}{1}$$

$$= \frac{5}{2} - \frac{4}{2} \quad \left. \vphantom{\frac{5}{2} - \frac{4}{2}} \right) \times 2$$

$$= \boxed{\frac{1}{2}}$$

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## BEDMAS

This is the order of operations which is used in every math question.

B rackets

E xponents

[ D ivision

[ M ultiplication

[ A ddition

[ S ubtraction

Ex.

$$a) -4^2 \quad \text{vs.} \quad (-4)^2$$

$$\begin{aligned} \textcircled{*} &= -(4)(4) &= (-4)(-4) \\ &= \boxed{-16} &= \boxed{+16} \end{aligned}$$

$$b) 2 + 3 \times 4$$

$$= 2 + 12$$

$$= \boxed{14}$$

c)

$$(2 + (3 \times (4 + \underbrace{(-2 \times 3)}^2))) + 1$$

$$= (2 + (3 \times (4 + \underbrace{(-6)}^2))) + 1$$

$$= (2 + (3 \times (4 + 36))) + 1$$

$$= (2 + (3 \times 40)) + 1$$

$$= (2 + 120) + 1$$

$$= 122 + 1$$

$$= \boxed{123}$$

$$d) \frac{2}{3} + \frac{3}{4} \div \frac{4}{5}$$

$$= \frac{2}{3} + \frac{3}{4} \times \frac{5}{4}$$

$$= \frac{2}{3} + \frac{15}{16}$$

$$\stackrel{\times 16}{=} \left( \frac{32}{48} + \frac{45}{48} \right) \times 3$$

$$\begin{array}{r} 16 \\ \times 3 \\ \hline 48 \end{array}$$

$$= \boxed{\frac{77}{48}}$$



$$e) \left( \frac{1}{6} - \frac{1}{2} \right)^2 + \frac{3}{2} \times \frac{2}{5}$$

$$= \left( \frac{2}{12} - \frac{6}{12} \right)^2 + \frac{3}{2} \times \frac{2}{5}$$

$$= \left( -\frac{4}{12} \right)^2 + \frac{3}{2} \times \frac{2}{5}$$

$$= \left( -\frac{2}{6} \right)^2 + \frac{3}{2} \times \frac{2}{5}$$

$$= \left(-\frac{1}{3}\right)^2 + \frac{3}{2} \times \frac{2}{5}$$

$$= \left(-\frac{1}{3}\right)\left(-\frac{1}{3}\right) + \frac{3}{2} \times \frac{2}{5}$$

$$= \frac{1}{9} + \frac{6}{10}$$

$$= \frac{1}{9} + \frac{3}{5}$$

$(\times 5)$        $(\times 9)$

$$= \frac{5}{45} + \frac{27}{45}$$

$$= \boxed{\frac{32}{45}}$$

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$$f) \left[ \begin{array}{l} \left( \frac{1}{3} + \frac{1}{4} \right) \textcircled{A} \\ \hline \left( \frac{2}{3} + \frac{4}{5} \right) \textcircled{B} \end{array} \right]^2$$

$$\begin{aligned} & \textcircled{A} \quad \frac{1}{3} + \frac{1}{4} \\ & \left( \begin{array}{c} \times 4 \\ \vdots \\ \frac{4}{12} + \frac{3}{12} \end{array} \right) \times 3 \\ & = \boxed{\frac{7}{12}} \end{aligned}$$

$$\begin{aligned} & \textcircled{B} \quad \frac{2}{3} + \frac{4}{5} \\ & = \frac{10}{15} + \frac{12}{15} \\ & = \boxed{\frac{22}{15}} \end{aligned}$$

$$\begin{aligned}
& \left[ \frac{\left( \frac{7}{12} \right)}{\frac{22}{15}} \right]^2 \\
&= \left[ \frac{7}{12} \cdot \frac{15}{22} \right]^2 \\
&= \left( \frac{105}{264} \right)^2 = \left( \frac{35}{88} \right)^2 \\
&= \boxed{\frac{1225}{7744}}
\end{aligned}$$