Order of Operations with Fractions

Name: Solutions

Perform the following using the order of operations. Work slowly and carefully with your group members to make sure you are using the order of operations appropriately and completing computations correctly.

PEMDAS
L to R

1. $\frac{3}{4} - \frac{1}{2} \cdot \frac{2}{3}$

$= \frac{3 \cdot 3}{4 \cdot 3} - \frac{1 \cdot 4}{3 \cdot 4}$ LCD = 12

$= \frac{9}{12} - \frac{4}{12}$

$= \frac{5}{12}$

2. $\frac{1}{2} \div \frac{1}{2} \cdot \frac{4}{5}$

$= \frac{1}{2} \cdot \frac{2}{1} \cdot \frac{4}{5}$

$= \frac{4}{5}$

3. $\frac{7}{15} + \frac{3}{5}\left(\frac{2}{6}\right)$

$= \frac{7}{15} + \frac{1}{5} \cdot \frac{3}{3}$ LCD = 15

$= \frac{7}{15} + \frac{3}{15}$

$= \frac{10}{15}$

$= \frac{2}{3}$

4. $\left(\frac{2}{3} \div \frac{16}{9}\right) - 3\left(\frac{1}{15}\right)$

$= \frac{2}{3} \cdot \frac{9}{16} - \frac{3}{1} \cdot \frac{1}{15}$

$= \frac{3 \cdot 5}{8 \cdot 5} - \frac{1 \cdot 8}{5 \cdot 8}$ LCD = 40

$= \frac{15}{40} - \frac{8}{40}$

$= \frac{7}{40}$

5. $\frac{1}{6}+\frac{11}{4}\left(-\frac{2}{3}\right)^2$

$= \frac{1}{6} + \frac{11}{4}\left(-\frac{2}{3}\right)\left(-\frac{2}{3}\right)$

$= \frac{1}{6} + \frac{11}{\cancel{4}_1} \cdot \frac{\cancel{4}^1}{9}$

$= \frac{1}{6} + \frac{11}{9}$ LCD = 18

$= \frac{3}{18} + \frac{22}{18} = \frac{25}{18}$

Challenge Problem:

6. $\left(\frac{11}{5}-1\frac{2}{3}\right)-\left(-\frac{4}{9}\cdot 18\right)^2$

$= \left(\frac{11\cdot 3}{5\cdot 3} - \frac{5\cdot 5}{3\cdot 5}\right) - \left(-\frac{4}{\cancel{9}_1} \cdot \frac{\cancel{18}^2}{1}\right)^2$

$= \left(\frac{33}{15} - \frac{25}{15}\right) - \left(-\frac{8}{1}\right)^2$

$= \frac{8}{15} - \frac{64\cdot 15}{1\cdot 15}$

$= \frac{8}{15} - \frac{960}{15}$

$= \frac{-952}{15}$

$\begin{array}{r} {\scriptstyle 2} \\ 64 \\ 15 \\ \hline 320 \\ 64 \\ \hline 960 \end{array}$