

Order of Operations with Fractions (F)

Name: _____

Date: _____

Simplify each expression using the correct order of operations.

$$\left(\frac{1}{2} \div \frac{5}{8}\right) \times \left(\frac{2}{3} + \frac{3}{5} - \frac{1}{9} - \frac{5}{9}\right) \div \frac{3}{8}$$

$$\frac{5}{9} \div \frac{2}{3} + \frac{1}{2} - \frac{7}{9} \times \left(\left(\frac{3}{8} - \frac{1}{6}\right) \div \frac{7}{8}\right)$$

$$\frac{1}{2} - \frac{4}{9} + \frac{3}{8} \times \left(\left(\frac{8}{9} \div \frac{2}{9}\right) \times \left(\frac{3}{5} + \frac{2}{5}\right)\right)$$

$$\frac{7}{8} \div \left(\frac{8}{9} - \frac{7}{9} + \frac{1}{5}\right) \times \left(\frac{5}{6} \times \left(\frac{4}{9} \div \frac{1}{2}\right)\right)$$

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$$\begin{aligned}
 & \left(\frac{1}{2} \div \frac{5}{8} \right) \times \left(\frac{2}{3} + \frac{3}{5} - \frac{1}{9} - \frac{5}{9} \right) \div \frac{3}{8} \\
 &= \frac{4}{5} \times \left(\frac{2}{3} + \frac{3}{5} - \frac{1}{9} - \frac{5}{9} \right) \div \frac{3}{8} \\
 &= \frac{4}{5} \times \left(\frac{19}{15} - \frac{1}{9} - \frac{5}{9} \right) \div \frac{3}{8} \\
 &= \frac{4}{5} \times \left(\frac{52}{45} - \frac{5}{9} \right) \div \frac{3}{8} \\
 &= \frac{4}{5} \times \frac{3}{5} \div \frac{3}{8} \\
 &= \frac{12}{25} \div \frac{3}{8} \\
 &= \frac{32}{25} \\
 &= 1\frac{7}{25}
 \end{aligned}$$

$$\begin{aligned}
 & \frac{5}{9} \div \frac{2}{3} + \frac{1}{2} - \frac{7}{9} \times \left(\left(\frac{3}{8} - \frac{1}{6} \right) \div \frac{7}{8} \right) \\
 &= \frac{5}{9} \div \frac{2}{3} + \frac{1}{2} - \frac{7}{9} \times \left(\frac{5}{24} \div \frac{7}{8} \right) \\
 &= \frac{5}{9} \div \frac{2}{3} + \frac{1}{2} - \frac{7}{9} \times \frac{5}{21} \\
 &= \frac{5}{6} + \frac{1}{2} - \frac{7}{9} \times \frac{5}{21} \\
 &= \frac{5}{6} + \frac{1}{2} - \frac{5}{27} \\
 &= \frac{4}{3} - \frac{5}{27} \\
 &= \frac{31}{27} \\
 &= 1\frac{4}{27}
 \end{aligned}$$

$$\begin{aligned}
 & \frac{1}{2} - \frac{4}{9} + \frac{3}{8} \times \left(\left(\frac{8}{9} \div \frac{2}{9} \right) \times \left(\frac{3}{5} + \frac{2}{5} \right) \right) \\
 &= \frac{1}{2} - \frac{4}{9} + \frac{3}{8} \times \left(4 \times \left(\frac{3}{5} + \frac{2}{5} \right) \right) \\
 &= \frac{1}{2} - \frac{4}{9} + \frac{3}{8} \times (4 \times 1) \\
 &= \frac{1}{2} - \frac{4}{9} + \frac{3}{8} \times 4 \\
 &= \frac{1}{2} - \frac{4}{9} + \frac{3}{2} \\
 &= \frac{1}{18} + \frac{3}{2} \\
 &= \frac{14}{9} \\
 &= 1\frac{5}{9}
 \end{aligned}$$

$$\begin{aligned}
 & \frac{7}{8} \div \left(\frac{8}{9} - \frac{7}{9} + \frac{1}{5} \right) \times \left(\frac{5}{6} \times \left(\frac{4}{9} \div \frac{1}{2} \right) \right) \\
 &= \frac{7}{8} \div \left(\frac{1}{9} + \frac{1}{5} \right) \times \left(\frac{5}{6} \times \left(\frac{4}{9} \div \frac{1}{2} \right) \right) \\
 &= \frac{7}{8} \div \frac{14}{45} \times \left(\frac{5}{6} \times \left(\frac{4}{9} \div \frac{1}{2} \right) \right) \\
 &= \frac{7}{8} \div \frac{14}{45} \times \left(\frac{5}{6} \times \frac{8}{9} \right) \\
 &= \frac{7}{8} \div \frac{14}{45} \times \frac{20}{27} \\
 &= \frac{45}{16} \times \frac{20}{27} \\
 &= \frac{25}{12} \\
 &= 2\frac{1}{12}
 \end{aligned}$$