

Order of Operations with Fractions (E)

Name: _____

Date: _____

Simplify each expression using the correct order of operations.

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

$$\left(\frac{5}{9} + \frac{4}{9} \right) \div \frac{1}{2} \times \left(\left(\frac{3}{4} - \frac{1}{5} \right) \div \frac{1}{4} \right) \times \frac{5}{6}$$

$$\left(\left(\frac{7}{9} - \frac{1}{9} \right) \times \frac{5}{8} \right) \div \frac{3}{4} + \frac{3}{8} \times \frac{4}{9} \div \frac{4}{5}$$

$$\left(\frac{1}{9} \div \frac{5}{6} \right) \times \left(\frac{4}{9} + \frac{1}{4} - \frac{5}{9} \right) \times \left(\frac{3}{4} \div \frac{8}{9} \right)$$

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$$\begin{aligned}
 & \frac{5}{8} \times \frac{7}{9} - \frac{1}{8} + \frac{1}{9} \div \left(\left(\frac{1}{2} \times \frac{2}{5} \right) \div \frac{1}{4} \right) \\
 &= \frac{5}{8} \times \frac{7}{9} - \frac{1}{8} + \frac{1}{9} \div \left(\frac{1}{5} \div \frac{1}{4} \right) \\
 &= \frac{5}{8} \times \frac{7}{9} - \frac{1}{8} + \frac{1}{9} \div \frac{4}{5} \\
 &= \frac{35}{72} - \frac{1}{8} + \frac{1}{9} \div \frac{4}{5} \\
 &= \frac{35}{72} - \frac{1}{8} + \frac{5}{36} \\
 &= \frac{13}{36} + \frac{5}{36} \\
 &= \frac{1}{2}
 \end{aligned}$$

$$\begin{aligned}
 & \left(\frac{5}{9} + \frac{4}{9} \right) \div \frac{1}{2} \times \left(\left(\frac{3}{4} - \frac{1}{5} \right) \div \frac{1}{4} \right) \times \frac{5}{6} \\
 &= 1 \div \frac{1}{2} \times \left(\left(\frac{3}{4} - \frac{1}{5} \right) \div \frac{1}{4} \right) \times \frac{5}{6} \\
 &= 1 \div \frac{1}{2} \times \left(\frac{11}{20} \div \frac{1}{4} \right) \times \frac{5}{6} \\
 &= \frac{1 \div \frac{1}{2}}{2} \times \frac{11}{5} \times \frac{5}{6} \\
 &= \frac{2 \times 11}{5} \times \frac{5}{6} \\
 &= \frac{22}{5} \times \frac{5}{6} \\
 &= \frac{11}{3} \\
 &= 3\frac{2}{3}
 \end{aligned}$$

$$\begin{aligned}
 & \left(\left(\frac{7}{9} - \frac{1}{9} \right) \times \frac{5}{8} \right) \div \frac{3}{4} + \frac{3}{8} \times \frac{4}{9} \div \frac{4}{5} \\
 &= \left(\frac{2}{3} \times \frac{5}{8} \right) \div \frac{3}{4} + \frac{3}{8} \times \frac{4}{9} \div \frac{4}{5} \\
 &= \frac{5}{12} \div \frac{3}{4} + \frac{3}{8} \times \frac{4}{9} \div \frac{4}{5} \\
 &= \frac{5}{9} + \frac{3}{8} \times \frac{4}{9} \div \frac{4}{5} \\
 &= \frac{5}{9} + \frac{1}{6} \div \frac{4}{5} \\
 &= \frac{5}{9} + \frac{5}{24} \\
 &= \frac{55}{72}
 \end{aligned}$$

$$\begin{aligned}
 & \left(\frac{1}{9} \div \frac{5}{6} \right) \times \left(\frac{4}{9} + \frac{1}{4} - \frac{5}{9} \right) \times \left(\frac{3}{4} \div \frac{8}{9} \right) \\
 &= \frac{2}{15} \times \left(\frac{4}{9} + \frac{1}{4} - \frac{5}{9} \right) \times \left(\frac{3}{4} \div \frac{8}{9} \right) \\
 &= \frac{2}{15} \times \left(\frac{25}{36} - \frac{5}{9} \right) \times \left(\frac{3}{4} \div \frac{8}{9} \right) \\
 &= \frac{2}{15} \times \frac{5}{36} \times \left(\frac{3}{4} \div \frac{8}{9} \right) \\
 &= \frac{2}{15} \times \frac{5}{36} \times \frac{27}{32} \\
 &= \frac{1}{54} \times \frac{27}{32} \\
 &= \frac{1}{64}
 \end{aligned}$$