

Order of Operations with Fractions (E)

Name: _____

Date: _____

Solve each expression using the correct order of operations.

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

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

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

$$\frac{1}{9} \times \left(\left(\frac{5}{6}\right)^2 \div \left(\frac{1}{3}\right)^2 + \frac{1}{4} - \frac{1}{8}\right)$$

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$$\begin{aligned}
 & \left(\left(\frac{5}{6} \right)^2 - \left(\frac{1}{3} \right)^2 \right) \div \frac{1}{4} \times \frac{5}{9} + \frac{4}{9} \\
 &= \left(\frac{25}{36} - \left(\frac{1}{3} \right)^2 \right) \div \frac{1}{4} \times \frac{5}{9} + \frac{4}{9} \\
 &= \left(\frac{25}{36} - \frac{1}{9} \right) \div \frac{1}{4} \times \frac{5}{9} + \frac{4}{9} \\
 &= \frac{7}{12} \div \frac{1}{4} \times \frac{5}{9} + \frac{4}{9} \\
 &= \frac{7}{3} \times \frac{5}{9} + \frac{4}{9} \\
 &= \frac{35}{27} + \frac{4}{9} \\
 &= \frac{47}{27} \\
 &= 1\frac{20}{27}
 \end{aligned}$$

$$\begin{aligned}
 & \left(\left(\frac{5}{8} - \frac{3}{8} + \frac{1}{8} \div \frac{2}{5} \right) \times \frac{8}{9} \right) \div \left(\frac{5}{6} \right)^2 \\
 &= \left(\left(\frac{5}{8} - \frac{3}{8} + \frac{5}{16} \right) \times \frac{8}{9} \right) \div \left(\frac{5}{6} \right)^2 \\
 &= \left(\left(\frac{1}{4} + \frac{5}{16} \right) \times \frac{8}{9} \right) \div \left(\frac{5}{6} \right)^2 \\
 &= \left(\frac{9}{16} \times \frac{8}{9} \right) \div \left(\frac{5}{6} \right)^2 \\
 &= \frac{1}{2} \div \left(\frac{5}{6} \right)^2 \\
 &= \frac{1}{2} \div \frac{25}{36} \\
 &= \frac{18}{25}
 \end{aligned}$$

$$\begin{aligned}
 & \frac{1}{5} + \frac{3}{8} \div \left(\left(\frac{2}{3} \right)^2 - \frac{1}{6} \right) \times \left(\frac{2}{9} + \frac{1}{9} \right) \\
 &= \frac{1}{5} + \frac{3}{8} \div \left(\frac{4}{9} - \frac{1}{6} \right) \times \left(\frac{2}{9} + \frac{1}{9} \right) \\
 &= \frac{1}{5} + \frac{3}{8} \div \frac{5}{18} \times \left(\frac{2}{9} + \frac{1}{9} \right) \\
 &= \frac{1}{5} + \frac{3}{8} \div \frac{5}{18} \times \frac{1}{3} \\
 &= \frac{1}{5} + \frac{27}{20} \times \frac{1}{3} \\
 &= \frac{1}{5} + \frac{9}{20} \\
 &= \frac{13}{20}
 \end{aligned}$$

$$\begin{aligned}
 & \frac{1}{9} \times \left(\left(\frac{5}{6} \right)^2 \div \left(\frac{1}{3} \right)^2 + \frac{1}{4} - \frac{1}{8} \right) \\
 &= \frac{1}{9} \times \left(\frac{25}{36} \div \left(\frac{1}{3} \right)^2 + \frac{1}{4} - \frac{1}{8} \right) \\
 &= \frac{1}{9} \times \left(\frac{25}{36} \div \frac{1}{9} + \frac{1}{4} - \frac{1}{8} \right) \\
 &= \frac{1}{9} \times \left(\frac{25}{4} + \frac{1}{4} - \frac{1}{8} \right) \\
 &= \frac{1}{9} \times \left(\frac{13}{2} - \frac{1}{8} \right) \\
 &= \frac{1}{9} \times \frac{51}{8} \\
 &= \frac{17}{24}
 \end{aligned}$$