

# Order of Operations with Fractions (H)

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Simplify each expression using the correct order of operations.

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

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

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

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

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Simplify each expression using the correct order of operations.

$$\begin{aligned}
 & \left( \frac{1}{3} \times \frac{5}{8} \right) \div \left( \frac{1}{9} + \frac{1}{2} - \frac{1}{8} \right) \times \left( \frac{3}{5} \div \frac{4}{5} \right) \\
 &= \frac{5}{24} \div \left( \frac{1}{9} + \frac{1}{2} - \frac{1}{8} \right) \times \left( \frac{3}{5} \div \frac{4}{5} \right) \\
 &= \frac{5}{24} \div \left( \frac{11}{18} - \frac{1}{8} \right) \times \left( \frac{3}{5} \div \frac{4}{5} \right) \\
 &= \frac{5}{24} \div \frac{35}{72} \times \left( \frac{3}{5} \div \frac{4}{5} \right) \\
 &= \frac{5}{24} \div \frac{35}{72} \times \frac{3}{4} \\
 &= \frac{3}{7} \times \frac{3}{4} \\
 &= \frac{9}{28}
 \end{aligned}$$

$$\begin{aligned}
 & \left( \frac{5}{8} \div \frac{1}{4} \right) \times \left( \frac{3}{5} - \frac{1}{9} + \frac{2}{3} + \frac{4}{5} - \frac{2}{5} \right) \\
 &= \frac{5}{2} \times \left( \frac{3}{5} - \frac{1}{9} + \frac{2}{3} + \frac{4}{5} - \frac{2}{5} \right) \\
 &= \frac{5}{2} \times \left( \frac{22}{45} + \frac{2}{3} + \frac{4}{5} - \frac{2}{5} \right) \\
 &= \frac{5}{2} \times \left( \frac{52}{45} + \frac{4}{5} - \frac{2}{5} \right) \\
 &= \frac{5}{2} \times \left( \frac{88}{45} - \frac{2}{5} \right) \\
 &= \frac{5}{2} \times \frac{14}{9} \\
 &= \frac{35}{9} \\
 &= 3\frac{8}{9}
 \end{aligned}$$

$$\begin{aligned}
 & \frac{1}{5} \div \left( \frac{1}{3} - \frac{1}{4} + \frac{5}{8} \right) \times \left( \frac{3}{4} \times \left( \frac{4}{9} - \frac{2}{9} \right) \right) \\
 &= \frac{1}{5} \div \left( \frac{1}{12} + \frac{5}{8} \right) \times \left( \frac{3}{4} \times \left( \frac{4}{9} - \frac{2}{9} \right) \right) \\
 &= \frac{1}{5} \div \frac{17}{24} \times \left( \frac{3}{4} \times \left( \frac{4}{9} - \frac{2}{9} \right) \right) \\
 &= \frac{1}{5} \div \frac{17}{24} \times \left( \frac{3}{4} \times \frac{2}{9} \right) \\
 &= \frac{1}{5} \div \frac{17}{24} \times \frac{1}{6} \\
 &= \frac{24}{85} \times \frac{1}{6} \\
 &= \frac{4}{85}
 \end{aligned}$$

$$\begin{aligned}
 & \left( \frac{1}{2} \div \frac{1}{3} \right) \times \left( \frac{2}{3} - \frac{4}{9} + \frac{3}{4} - \frac{1}{9} + \frac{8}{9} \right) \\
 &= \frac{3}{2} \times \left( \frac{2}{3} - \frac{4}{9} + \frac{3}{4} - \frac{1}{9} + \frac{8}{9} \right) \\
 &= \frac{3}{2} \times \left( \frac{2}{9} + \frac{3}{4} - \frac{1}{9} + \frac{8}{9} \right) \\
 &= \frac{3}{2} \times \left( \frac{35}{36} - \frac{1}{9} + \frac{8}{9} \right) \\
 &= \frac{3}{2} \times \left( \frac{31}{36} + \frac{8}{9} \right) \\
 &= \frac{3}{2} \times \frac{7}{4} \\
 &= \frac{21}{8} \\
 &= 2\frac{5}{8}
 \end{aligned}$$