Order of Operations with Fractions (H)

Name: _____ Date: _____

Simplify each expression using the correct order of operations.

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

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

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

$\left(\frac{4}{9} + \left(\frac{1}{3}\right)^2 \times \frac{7}{8} - \frac{1}{4}\right) \div \frac{3}{4} + \frac{8}{9}$

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

$= \left(\frac{9}{16} \div \frac{1}{4}\right) \times \left(\frac{5}{6} - \frac{1}{2} + \left(\frac{1}{5}\right)^2\right)$

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

$= \frac{9}{4} \times \left(\frac{5}{6} - \frac{1}{2} + \frac{1}{25}\right)$

$= \frac{9}{4} \times \left(\frac{1}{3} + \frac{1}{25}\right)$

$= \frac{9}{4} \times \frac{28}{75}$

$= \frac{21}{25}$

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

$= \frac{1}{8} + \frac{1}{3} \div \left(\left(\frac{2}{9} - \frac{1}{18}\right) \div \frac{1}{6}\right)^2$

$= \frac{1}{8} + \frac{1}{3} \div \left(\frac{1}{6} \div \frac{1}{6}\right)^2$

$= \frac{1}{8} + \frac{1}{3} \div 1^2$

$= \frac{1}{8} + \frac{1}{3} \div 1$

$= \frac{1}{8} + \frac{1}{3}$

$= \frac{11}{24}$

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

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

$= \frac{1}{2} \times \left(\frac{1}{3}\right)^3 \div \left(\frac{7}{9} - \frac{1}{6}\right)$

$= \frac{1}{2} \times \left(\frac{1}{3}\right)^3 \div \frac{11}{18}$

$= \frac{1}{2} \times \frac{1}{27} \div \frac{11}{18}$

$= \frac{1}{54} \div \frac{11}{18}$

$= \frac{1}{33}$

$\left(\frac{4}{9} + \left(\frac{1}{3}\right)^2 \times \frac{7}{8} - \frac{1}{4}\right) \div \frac{3}{4} + \frac{8}{9}$

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

$= \left(\frac{4}{9} + \frac{7}{72} - \frac{1}{4}\right) \div \frac{3}{4} + \frac{8}{9}$

$= \left(\frac{13}{24} - \frac{1}{4}\right) \div \frac{3}{4} + \frac{8}{9}$

$= \frac{7}{24} \div \frac{3}{4} + \frac{8}{9}$

$= \frac{7}{18} + \frac{8}{9}$

$= \frac{23}{18}$

$= 1\frac{5}{18}$