Order of Operations with Fractions (F)

Name: _____ Date: _____

Simplify each expression using the correct order of operations.

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

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

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

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

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$$\frac{1}{9} \div \left(\frac{3}{5} + \frac{2}{5} \times \frac{3}{4} - \frac{4}{5}\right) \div \left(\frac{2}{3}\right)^3$$
$$= \frac{1}{9} \div \left(\frac{3}{5} + \frac{3}{10} - \frac{4}{5}\right) \div \left(\frac{2}{3}\right)^3$$
$$= \frac{1}{9} \div \left(\frac{9}{10} - \frac{4}{5}\right) \div \left(\frac{2}{3}\right)^3$$
$$= \frac{1}{9} \div \frac{1}{10} \div \left(\frac{2}{3}\right)^3$$
$$= \frac{1}{9} \div \frac{1}{10} \div \frac{8}{27}$$
$$= \frac{10}{9} \div \frac{8}{27}$$
$$= \frac{15}{4}$$
$$= 3\frac{3}{4}$$

$$\left(\left(\frac{3}{8}\right)^2 - \left(\frac{1}{4}\right)^3\right) \div \frac{1}{2} + \frac{5}{9} \times \frac{1}{8}$$
$$= \left(\frac{9}{64} - \left(\frac{1}{4}\right)^3\right) \div \frac{1}{2} + \frac{5}{9} \times \frac{1}{8}$$
$$= \left(\frac{9}{64} - \frac{1}{64}\right) \div \frac{1}{2} + \frac{5}{9} \times \frac{1}{8}$$
$$= \frac{1}{8} \div \frac{1}{2} + \frac{5}{9} \times \frac{1}{8}$$
$$= \frac{1}{4} + \frac{5}{9} \times \frac{1}{8}$$
$$= \frac{1}{4} + \frac{5}{72}$$
$$= \frac{23}{72}$$

$$\left(\frac{1}{3}\right)^3 \div \left(\frac{5}{6} - \frac{5}{9} + \frac{1}{6} \times \frac{3}{4}\right) \times \frac{5}{8}$$
$$= \left(\frac{1}{3}\right)^3 \div \left(\frac{5}{6} - \frac{5}{9} + \frac{1}{8}\right) \times \frac{5}{8}$$
$$= \left(\frac{1}{3}\right)^3 \div \left(\frac{5}{18} + \frac{1}{8}\right) \times \frac{5}{8}$$
$$= \left(\frac{1}{3}\right)^3 \div \frac{29}{72} \times \frac{5}{8}$$
$$= \frac{1}{27} \div \frac{29}{72} \times \frac{5}{8}$$
$$= \frac{8}{87} \times \frac{5}{8}$$
$$= \frac{5}{87}$$

$$\left(\frac{3}{8} \times \frac{4}{9} \div \frac{1}{5} - \left(\frac{1}{2}\right)^2 + \frac{1}{4}\right) \div \frac{5}{9}$$
$$= \left(\frac{3}{8} \times \frac{4}{9} \div \frac{1}{5} - \frac{1}{4} + \frac{1}{4}\right) \div \frac{5}{9}$$
$$= \left(\frac{1}{6} \div \frac{1}{5} - \frac{1}{4} + \frac{1}{4}\right) \div \frac{5}{9}$$
$$= \left(\frac{5}{6} - \frac{1}{4} + \frac{1}{4}\right) \div \frac{5}{9}$$
$$= \left(\frac{7}{12} + \frac{1}{4}\right) \div \frac{5}{9}$$
$$= \frac{5}{6} \div \frac{5}{9}$$
$$= \frac{3}{2}$$
$$= 1\frac{1}{2}$$