Order of Operations with Fractions (E)

Name: _____   Date: _____

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

$$= \left(\frac{25}{36} - \left(\frac{1}{3}\right)^2\right) \div \frac{1}{4} \times \frac{5}{9} + \frac{4}{9}$$

$$= \left(\frac{25}{36} - \frac{1}{9}\right) \div \frac{1}{4} \times \frac{5}{9} + \frac{4}{9}$$

$$= \frac{7}{12} \div \frac{1}{4} \times \frac{5}{9} + \frac{4}{9}$$

$$= \frac{7}{3} \times \frac{5}{9} + \frac{4}{9}$$

$$= \frac{35}{27} + \frac{4}{9}$$

$$= \frac{47}{27}$$

$$= 1\frac{20}{27}$$

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

$$= \left(\left(\frac{5}{8} - \frac{3}{8} + \frac{5}{16}\right) \times \frac{8}{9}\right) \div \left(\frac{5}{6}\right)^2$$

$$= \left(\left(\frac{1}{4} + \frac{5}{16}\right) \times \frac{8}{9}\right) \div \left(\frac{5}{6}\right)^2$$

$$= \left(\frac{9}{16} \times \frac{8}{9}\right) \div \left(\frac{5}{6}\right)^2$$

$$= \frac{1}{2} \div \left(\frac{5}{6}\right)^2$$

$$= \frac{1}{2} \div \frac{25}{36}$$

$$= \frac{18}{25}$$

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

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

$$= \frac{1}{5} + \frac{3}{8} \div \frac{5}{18} \times \left(\frac{2}{9} + \frac{1}{9}\right)$$

$$= \frac{1}{5} + \frac{3}{8} \div \frac{5}{18} \times \frac{1}{3}$$

$$= \frac{1}{5} + \frac{27}{20} \times \frac{1}{3}$$

$$= \frac{1}{5} + \frac{9}{20}$$

$$= \frac{13}{20}$$

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

$$= \frac{1}{9} \times \left(\frac{25}{36} \div \left(\frac{1}{3}\right)^2 + \frac{1}{4} - \frac{1}{8}\right)$$

$$= \frac{1}{9} \times \left(\frac{25}{36} \div \frac{1}{9} + \frac{1}{4} - \frac{1}{8}\right)$$

$$= \frac{1}{9} \times \left(\frac{25}{4} + \frac{1}{4} - \frac{1}{8}\right)$$

$$= \frac{1}{9} \times \left(\frac{13}{2} - \frac{1}{8}\right)$$

$$= \frac{1}{9} \times \frac{51}{8}$$

$$= \frac{17}{24}$$

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