Order of Operations with Fractions (G)

Name: _____

Date: _____

Simplify each expression using the correct order of operations.

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

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

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

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

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Problem 1 (left column):

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

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

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

$$=\frac{1}{40}\div\frac{1}{9}-\frac{1}{5}+\frac{3}{8}$$

$$=\frac{9}{40}-\frac{1}{5}+\frac{3}{8}$$

$$=\frac{1}{40}+\frac{3}{8}$$

$$=\frac{2}{5}$$

Problem 2 (right column):

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

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

$$=\frac{1}{6}\times\left(1-\frac{1}{6}-\frac{5}{6}\right)\div\frac{7}{8}$$

$$=\frac{1}{6}\times\left(\frac{5}{6}-\frac{5}{6}\right)\div\frac{7}{8}$$

$$=\frac{1}{6}\times0\div\frac{7}{8}$$

$$=0\div\frac{7}{8}$$

$$=0$$

Problem 3 (left column):

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

$$=\left(\frac{13}{12}\div\frac{2}{9}\right)\times\frac{7}{9}-\frac{7}{8}+\frac{1}{6}\div\frac{2}{3}$$

$$=\frac{39}{8}\times\frac{7}{9}-\frac{7}{8}+\frac{1}{6}\div\frac{2}{3}$$

$$=\frac{91}{24}-\frac{7}{8}+\frac{1}{6}\div\frac{2}{3}$$

$$=\frac{91}{24}-\frac{7}{8}+\frac{1}{4}$$

$$=\frac{35}{12}+\frac{1}{4}$$

$$=\frac{19}{6}$$

$$=3\frac{1}{6}$$

Problem 4 (right column):

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

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

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

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

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

$$=\frac{1}{8}\div\frac{11}{18}$$

$$=\frac{9}{44}$$