



February 9, 2017

Math 8



Order of Operations with Fractions

- B - Brackets
- E - Exponents
- DM - Multiplication and Division in the order they occur
- AS - Addition and Subtraction in the order they occur *common denominators*

Examples:

$$(a) \frac{20}{21} \cdot \frac{3}{7} \times \frac{1}{5} + (\frac{1}{2} + \frac{1}{4})$$

Common Den

$$\frac{20}{21} \div \frac{7}{3} \times \frac{1}{5} + (\frac{2}{4} + \frac{1}{4})$$

$$\frac{20}{21} \div \frac{7}{3} \times \frac{1}{5} + (\frac{3}{4})$$

Flip and multiply

$$\frac{20}{21} \times \frac{3}{7} \times \frac{1}{5} + \frac{3}{4}$$

$$\frac{140}{63} \div 7 \times \frac{1}{5} + \frac{3}{4}$$

Reduce

$$\frac{20}{9} \times \frac{1}{5} + \frac{3}{4}$$

multiply

$$\frac{20 \times 4}{45 \times 4} + \frac{3 \times 45}{4 \times 45}$$

$$\frac{80}{180} + \frac{135}{180}$$

$$\frac{215}{180} \div 5 = \frac{43}{36}$$

$$| \frac{35}{180} \div 5$$

$$\boxed{1 \frac{7}{36}}$$

45, 90, 135, 180

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$$4 \text{ a) } \frac{1}{3} \times \left(\frac{7}{8} - \frac{3}{4} \right)$$

$$\frac{1}{3} \times \left(\frac{7}{8} - \frac{6}{8} \right)$$

$$\frac{1}{3} \times \frac{1}{8} = \frac{1}{24}$$

$$b) \frac{7}{8} \div \left(\frac{1}{3} \times \frac{1}{8} \right)$$

$$\frac{7}{8} \div \frac{1}{24}$$

$$\frac{7}{8} \times \frac{24}{1} = 21$$



$$c) \frac{5}{9} \times \left(\frac{3}{5} \div \frac{1}{6} \right)$$

$$\frac{5}{9} \times \left(\frac{3}{5} \times \frac{6}{1} \right)$$

$$\frac{5}{9} \times \frac{18}{5} = \frac{270}{45}$$

$$= 6$$

$$d) \left(\frac{5}{3} + \frac{7}{12} \right) \times \frac{4}{9}$$

$$\left(\frac{20}{12} + \frac{7}{12} \right) \times \frac{4}{9}$$

$$\frac{27}{12} \times \frac{4}{9} = \frac{108}{108} = 1$$

(or $\frac{108}{108} = 1$)

$$5. \frac{5}{8} + \frac{2}{3} \times \frac{1}{2}$$

$$\frac{5}{8} + \frac{2}{6}$$

$$\frac{5}{8} + \frac{2}{6} = \frac{10}{16} + \frac{5}{8}$$

$$= \frac{15}{8}$$

Raj was correct.

$$\begin{aligned}
 a) \quad & \frac{1}{2} \times \frac{3}{5} + \frac{1}{4} \\
 & \frac{3}{10} + \frac{1}{4} \\
 & \frac{6}{20} + \frac{5}{20} = \frac{11}{20}
 \end{aligned}$$

$$\begin{aligned}
 b) \quad & \frac{2}{3} + \frac{5}{6} \div \frac{1}{2} \\
 & \frac{2}{3} + \frac{5}{6} \times \frac{2}{1} \\
 & \frac{2}{3} + \frac{10}{6} \\
 & \frac{4}{6} + \frac{10}{6} = \frac{14}{6} \text{ or } \frac{7}{3}
 \end{aligned}$$

$$\begin{aligned}
 c) \quad & \frac{4}{5} \div \frac{7}{10} + \frac{1}{3} \\
 & \frac{4}{5} \times \frac{10}{7} + \frac{1}{3} \\
 & \frac{40}{35} + \frac{1}{3} \\
 & \frac{24}{21} + \frac{7}{21} = \frac{31}{21}
 \end{aligned}$$

$$\begin{aligned}
 d) \quad & \frac{1}{4} \times \left(\frac{11}{12} - \frac{5}{6} \right) \\
 & \frac{1}{4} \times \left(\frac{11}{12} - \frac{10}{12} \right) \\
 & \frac{1}{4} \times \frac{1}{12} = \frac{1}{48}
 \end{aligned}$$

$$\begin{aligned}
 e) \quad & \frac{1}{2} \times \left(\frac{4}{5} \div \frac{3}{10} \right) \\
 & \frac{1}{2} \times \left(\frac{4}{5} \times \frac{10}{3} \right) \\
 & \frac{1}{2} \times \frac{40}{3} = \frac{40}{30} \\
 & = \frac{4}{3}
 \end{aligned}$$

$$\begin{aligned}
 f) \quad & \left(\frac{3}{5} + \frac{7}{15} \right) \times \frac{5}{6} \\
 & \left(\frac{9}{15} + \frac{7}{15} \right) \times \frac{5}{6} \\
 & \frac{16}{15} \times \frac{5}{6} = \frac{80}{90} \\
 & = \frac{8}{9}
 \end{aligned}$$

Class/Homework

Test Tuesday, Feb. 14

If No school tomorrow,

STILL on Tuesday

7, 8, 11
pg. 155 # 7-11

for today

pg. 159 # 1-4a

(Model then use rules for rest)

Test Outline

7 Multiple Choice 7 points

8 Short Response 47 points

Review for Test

change
54

Be able to find equivalent fractions and reduce fractions

Be able to change from mixed number to an improper fraction and vice versa

Be able to add and subtract proper, improper fractions and mixed numbers

Be able to model multiplication of fractions using number lines and squares.

Be able to model division of fractions using number lines and squares.

Be able to multiply and divide fractions and mixed numbers using "rules"

Be able to solve word problems involving addition, subtraction, multiplication and division of fractions.

Be able to solve order of operations questions involving fractions.

