Jan. 26, 2018

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) $\dfrac{20}{21} \div \dfrac{3}{7} \times \dfrac{1}{5} + (½ + ¼)$ Bracket → add → Need C.D.

$= \dfrac{20}{21} \div \dfrac{3}{7} \times \dfrac{1}{5} + \left(\dfrac{2}{4} + \dfrac{1}{4}\right)$

$= \dfrac{20}{21} \div \dfrac{3}{7} \times \dfrac{1}{5} + \dfrac{3}{4}$

Division
flip and ×

OR $\dfrac{20}{21} \div \dfrac{3}{7} \times \dfrac{1}{5} + \dfrac{3}{4}$

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

$\dfrac{20}{21} \times \dfrac{7}{3}$

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

multiply

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

$= \dfrac{4}{9} + \dfrac{3}{4}$

Add so need C.D

$= \dfrac{16}{36} + \dfrac{27}{36}$

$= \dfrac{43}{36}$

$= 1\dfrac{7}{36}$

pg155

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

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

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

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

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

$\dfrac{7}{8} \times \dfrac{\cancel{24}^{3}}{1} = 2$

c) $\dfrac{9}{5} \times \left(\dfrac{3}{5} \div \dfrac{1}{10}\right)$

$\dfrac{9}{5} \times \left(\dfrac{3}{5} \times \dfrac{10}{1}\right)$

$\dfrac{9}{5} \times \dfrac{30}{5} = \dfrac{270}{25}$

$\dfrac{9}{5} \times \dfrac{6}{1} = \dfrac{54}{5}$

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

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

$\dfrac{\cancel{27}^{3\ 1}}{\cancel{12}_{3}} \times \dfrac{\cancel{4}^{1}}{\cancel{9}_{1}} = \dfrac{3}{3} = 1$

$\left(\text{or } \dfrac{108}{108} = 1\right)$

5. $\dfrac{5}{9} + \dfrac{2}{3} \times \dfrac{1}{2}$

$\dfrac{5}{9} + \dfrac{2}{6} \Rightarrow \dfrac{1}{3} + \dfrac{5}{9}$

$\dfrac{3}{9} + \dfrac{5}{9}$

$\dfrac{10}{18} + \dfrac{6}{18} = \dfrac{16}{18}$

$\dfrac{8}{9}$

$= \dfrac{8}{9}$

Raj was correct.

6.

a) $\frac{1}{2} \times \frac{3}{5} + \frac{1}{4}$

$\frac{3}{10} + \frac{1}{4}$

$\frac{6}{20} + \frac{5}{20} = \frac{11}{20}$

b) $\frac{2}{3} + \frac{5}{6} \div \frac{1}{2}$

$\frac{2}{3} + \frac{5}{6} \times \frac{2}{1}$

$\frac{2}{3} + \frac{10}{6}$

$\frac{4}{6} + \frac{10}{6} = \frac{14}{6}$ or $\frac{7}{3}$

c) $\frac{4}{5} \div \frac{7}{10} + \frac{1}{3}$

$\frac{4}{5} \times \frac{10}{7} + \frac{1}{3}$

$\frac{8}{7} + \frac{1}{3}$ or $\frac{40}{35} + \frac{1}{3}$

$\frac{8}{7} + \frac{1}{3}$

$\frac{24}{21} + \frac{7}{21} = \frac{31}{21}$

d) $\frac{1}{4} \times \left(\frac{11}{12} - \frac{5}{6} \right)$

$\frac{1}{4} \times \left(\frac{11}{12} - \frac{10}{12} \right)$

$\frac{1}{4} \times \frac{1}{12} = \frac{1}{48}$

e) $\frac{1}{2} \times \left(\frac{4}{5} \div \frac{3}{10} \right)$

$\frac{1}{2} \times \left(\frac{4}{5} \times \frac{10}{3} \right)$

$\frac{1}{2} \times \frac{40}{15} = \frac{40}{30}$

$= \frac{4}{3}$

f) $\left(\frac{3}{5} + \frac{7}{15} \right) \times \frac{5}{6}$

$\left(\frac{9}{15} + \frac{7}{15} \right) \times \frac{5}{6}$

$\frac{16}{15} \times \frac{5}{6} = \frac{80}{90}$

$= \frac{8}{9}$

Class/Homework

Test Tuesday, Jan 30

pg. 155 # 7-11   for today
pg. 159 # 1-4

Test Outline

7 Multiple Choice   7 points

8 Short Response   44 points   } 51

Review for Test

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.