Séance du 05/10/19.

Suite du TD sur les fractions.

6217 (suite)

b) $\frac{1}{7} + \frac{14}{3} \times \frac{6}{21} = \frac{1}{7} + \frac{\cancel{7} \times 2}{\cancel{3}} \times \frac{\cancel{3} \times 2}{\cancel{7} \times 3}$

$= \frac{3\times 1}{3\times 7} + \frac{4 \times 7}{3 \times 7}$

$= \frac{3}{21} + \frac{28}{21}$

$= \boxed{\frac{31}{21}}$

Fraction irréductible.

c) $\left(\frac{5^{\times 2}}{7_{\times 2}} - \frac{8}{14}\right) \times \frac{35}{6} = \left(\frac{10}{14} - \frac{8}{14}\right) \times \frac{35}{6}$.

$= \frac{2}{14} \times \frac{35}{6}$.

$= \frac{\cancel{2}}{\cancel{7} \times 2} \times \frac{\cancel{7} \times 5}{3 \times \cancel{2}} = \boxed{\frac{5}{6}}$

d) $2 + \frac{12}{15} \times \frac{10}{3} = 2 + \frac{\cancel{5} \times 4}{3 \times \cancel{5}} \times \frac{\cancel{5} \times 2}{3}$

$= \frac{2 \times 3}{1 \times 3} + \frac{8}{3}$

$= \frac{6}{3} + \frac{8}{3} = \boxed{\frac{14}{3}}$

e) $\frac{15}{12} \times \frac{6}{10} - \frac{1}{8} = \frac{\cancel{5} \times 3}{\cancel{6} \times 2} \times \frac{\cancel{6}}{\cancel{5} \times 2} - \frac{1}{8}$

$= \frac{3 \times 2}{4 \times 2} - \frac{1}{8}$

$= \frac{6}{8} - \frac{1}{8} = \boxed{\frac{5}{8}}$

f) $\frac{3 \times 3}{8 \times 3} + \frac{8 \times 8}{3 \times 8} = \frac{9}{24} + \frac{64}{24} = \boxed{\frac{73}{24}}$

nº 1057

* $\frac{-1}{4} = \frac{1}{-4} = -\frac{1}{4}$

a) $1 + \frac{1}{-2} \times \frac{1}{2} = 1 + \frac{1}{-4}$ *

$= 1 + \left(-\frac{1}{4}\right)$

$= \frac{1 \times 4}{4} - \frac{1}{4} = \frac{4}{4} - \frac{1}{4} = \boxed{\frac{3}{4}}$

b) $\frac{5}{9} \times \frac{27}{4} + \frac{5}{6} = \frac{5}{3 \times 3} \times \frac{3 \times 3 \times 3}{4} + \frac{5}{6}$

$= \frac{15 \times 3}{4 \times 3} + \frac{5 \times 2}{6 \times 2}$

$= \frac{45}{12} + \frac{10}{12} = \boxed{\frac{55}{12}}$.

c) $\frac{3}{7} + \frac{8}{4} \times \left(-\frac{1}{2}\right) = \frac{3}{7} + \frac{8}{4} \times \frac{-1}{2}$

$= \frac{3}{7} + \frac{2}{1} \times \frac{-1}{2}$

$= \frac{3}{7} + \frac{-2}{2}$

$= \frac{3}{7} + \left(-\frac{2}{2}\right)$

$= \frac{3}{7} - \frac{1 \times 7}{1 \times 7}$

$= \frac{3}{7} - \frac{7}{7} = \frac{3-7}{7} = \frac{-4}{7} = \boxed{-\frac{4}{7}}$

d) $\frac{-7}{15} \times \frac{-5}{21} - \frac{-4}{3} = \frac{-1 \times 7}{3 \times 5} \times \frac{5 \times (-1)}{7 \times 3} - \frac{-4}{3}$.

$= \frac{1}{9} - \left(-\frac{4}{3}\right)$

$= \frac{1}{9} + \frac{4 \times 3}{3 \times 3} = \frac{1}{9} + \frac{12}{9} = \boxed{\frac{13}{9}}$.

e) $-3 + \frac{9}{5} \times \frac{3}{1} = -\frac{3 \times 5}{1 \times 5} + \frac{27}{5} = -\frac{15}{5} + \frac{27}{5}$

$= \boxed{\frac{12}{5}}$

f) $\left(\frac{3 \times 4}{15 \times 4} - \frac{3 \times 3}{20 \times 3}\right) \times \frac{5}{9} = \left(\frac{12}{60} - \frac{9}{60}\right) \times \frac{5}{9}$

$= \frac{3}{60} \times \frac{5}{9}$

$= \frac{\cancel{3}}{\cancel{5} \times 12} \times \frac{\cancel{5}}{\cancel{3} \times 3}$

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

n° 1047

Rappel : diviser c'est multiplier par l'inverse :

$\left(\frac{a}{b}\right) \div \left(\frac{c}{d}\right) = \frac{\frac{a}{b}}{\frac{c}{d}} = \frac{a}{b} \times \frac{d}{c}$ (on recopie, puis inverse)

Ex : $\frac{\frac{12}{4}}{\frac{1}{5}} = \frac{12}{4} \times \frac{5}{1}$

$= 3 \times \frac{5}{1}$

$= \frac{15}{1} = 15.$

a) $\frac{2}{3} \div \frac{7}{4} = \frac{2}{3} \times \frac{4}{7} = \boxed{\frac{8}{21}}$

b) $\frac{8}{5} \div 3 = \frac{8}{5} \times \frac{1}{3} = \boxed{\frac{8}{15}}$

c) $\frac{2}{5} \div \frac{4}{15} = \frac{2}{5} \times \frac{15}{4} = \frac{\cancel{2}}{\cancel{5}} \times \frac{3 \times \cancel{5}}{\cancel{2} \times 2} = \boxed{\frac{3}{2}}$.

d) $\frac{3}{\frac{2}{3}} = 3 \times \frac{3}{2} = \boxed{\frac{9}{2}}$.

e) $\frac{\frac{2}{3}}{\frac{5}{3}} = \frac{2}{\cancel{3}} \times \frac{\cancel{3}}{5} = \boxed{\frac{2}{5}}$.

f) $\frac{\frac{3}{4}}{7} = \frac{3}{4} \times \frac{1}{7} = \boxed{\frac{3}{28}}$

<u>n° 109</u> : Effectuer les calculs suivants en respectant la priorité des opérations et ...

a) $-3 + \frac{7}{3} \times 9 = -3 + \frac{7}{\cancel{3}} \times \cancel{3} \times 3 = -3 + 21 = \boxed{18}$.

b) $\left(-\frac{2}{3} + \frac{1}{3}\right) \times \frac{9}{4} = -\frac{1}{3} \times \frac{9}{4}$

$= -\frac{1}{\cancel{3}} \times \frac{\cancel{3} \times 3}{4}$

$= \boxed{\frac{-3}{4}}$

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

$= \frac{12}{6} - \frac{9}{6} = \frac{3 \div 3}{6 \div 3} = \boxed{\frac{1}{2}}$.

d) $3 + \frac{2}{3} \div \frac{1}{3} = 3 + \frac{2}{3} \times \frac{3}{1} = 3 + \frac{2}{1}$

$= 3 + 2 = \boxed{5}$.

e) $\left(\frac{5}{3} + \frac{4}{3}\right) \div \left(\frac{3 \times 7}{5 \times 7} - \frac{3 \times 5}{7 \times 5}\right) = \frac{9}{3} \div \left(\frac{21}{35} - \frac{15}{35}\right)$

$= 3 \div \frac{6}{35} = 3 \times \frac{35}{6} = 3 \times \frac{35}{3 \times 2}$

$= \boxed{\frac{35}{2}}$.

f) $\dfrac{\frac{1}{4} + \frac{5}{2} \times \frac{3}{45}}{\frac{5}{6} + \frac{5}{4}} = \dfrac{\frac{1}{4} + \frac{5}{2} \times \frac{3}{3 \times 3 \times 5}}{\frac{5 \times 2}{6 \times 2} + \frac{5 \times 3}{4 \times 3}}$

$= \dfrac{\frac{1 \times 3}{4 \times 3} + \frac{1 \times 2}{6 \times 2}}{\frac{10}{12} + \frac{15}{12}}$

$= \dfrac{\frac{3}{12} + \frac{2}{12}}{\frac{25}{12}} = \dfrac{\frac{5}{12}}{\frac{25}{12}}$

$= \frac{5}{12} \times \frac{12}{25} = \frac{5}{5 \times 5} = \frac{1}{5}$.