

Exercice 1 :

Rendre les écritures fractionnaires suivantes en une fraction :

$$\frac{2,5}{4} ; ; \frac{4,13}{2,01} ; ; \frac{1,01}{1,001} ; ; \frac{5}{5,123} ; ; \frac{5,12}{51,2} ; ; \frac{0,013}{7}$$

Correction de l'exercice 1 :

- $\frac{2,5}{4} = \frac{2,5 \times 10}{4 \times 10} = \frac{25}{40}$
- $\frac{4,13}{2,01} = \frac{4,13 \times 100}{2,01 \times 100} = \frac{413}{201}$
- $\frac{1,01}{1,001} = \frac{1,01 \times 1000}{1,001 \times 1000} = \frac{1010}{1001}$
- $\frac{5}{5,123} = \frac{5 \times 1000}{5,123 \times 1000} = \frac{5000}{5123}$
- $\frac{5,12}{51,2} = \frac{5,12 \times 100}{51,2 \times 100} = \frac{512}{5120}$
- $\frac{0,013}{7} = \frac{0,013 \times 1000}{7 \times 1000} = \frac{13}{7000}$

Exercice 2 :

Compléter les égalités suivantes :

- $\frac{3}{4} = \frac{3 \times 7}{4 \times \dots} = \frac{\dots}{\dots}$
- $\frac{8}{26} = \frac{\dots \div \dots}{26 \div \dots} = \frac{\dots}{13}$
- $\frac{4}{5} = \frac{\dots \times \dots}{\dots \times \dots} = \frac{16}{\dots}$
- $\frac{15}{2} = \frac{\dots \times \dots}{2 \times 2} = \frac{\dots}{\dots}$
- $\frac{33}{44} = \frac{33 \div 11}{44 \div 11} = \frac{\dots}{\dots}$
- $\frac{10}{3} = \frac{\dots \times \dots}{\dots \times \dots} = \frac{\dots}{9}$
- $\frac{2}{3} = \frac{\dots}{15}$
- $\frac{4}{5} = \frac{\dots}{10}$
- $\frac{7}{4} = \frac{28}{\dots}$
- $\frac{4,4}{3,3} = \frac{\dots}{3}$
- $\frac{33}{21} = \frac{11}{\dots}$
- $\frac{4,2}{1,8} = \frac{7}{\dots}$

Correction de l'exercice 2 :

- $\frac{3}{4} = \frac{3 \times 7}{4 \times 7} = \frac{21}{28}$
- $\frac{8}{26} = \frac{8 \div 2}{26 \div 2} = \frac{4}{13}$
- $\frac{4}{5} = \frac{4 \times 4}{5 \times 4} = \frac{16}{20}$
- $\frac{15}{2} = \frac{15 \times 2}{2 \times 2} = \frac{30}{4}$
- $\frac{33}{44} = \frac{33 \div 11}{44 \div 11} = \frac{3}{4}$
- $\frac{10}{3} = \frac{10 \times 3}{3 \times 3} = \frac{30}{9}$
- $\frac{2}{3} = \frac{10}{15}$
- $\frac{4}{5} = \frac{8}{10}$
- $\frac{7}{4} = \frac{28}{16}$
- $\frac{4,4}{3,3} = \frac{4}{3}$
- $\frac{33}{21} = \frac{11}{7}$
- $\frac{4,2}{1,8} = \frac{7}{3}$

Exercice 3 :

Compléter les égalités suivantes :

- $\frac{56}{72} = \frac{\dots}{18} = \frac{280}{\dots} = \frac{21}{\dots} = \frac{\dots}{270}$
- $\frac{45}{60} = \frac{15}{\dots} = \frac{\dots}{52} = \frac{150}{\dots} = \frac{\dots}{44}$

Correction de l'exercice 3 :

- $\frac{56}{72} = \frac{14}{18} = \frac{280}{360} = \frac{21}{27} = \frac{210}{270}$
- $\frac{45}{60} = \frac{15}{20} = \frac{39}{52} = \frac{150}{200} = \frac{33}{44}$

Exercice 4 :

Simplifier les fractions suivantes :

$$\frac{8}{12} ; ; \frac{9}{21} ; ; \frac{7}{63} ; ; \frac{36}{45} ; ; \frac{4}{18} ; ; \frac{100}{45} ; ; \frac{14}{50}$$

$$\frac{49}{14} ; ; \frac{39}{130} ; ; \frac{5}{35}$$

Correction de l'exercice 4 :

- $\frac{8}{12} = \frac{4 \times 2}{4 \times 3} = \frac{2}{3}$
- $\frac{9}{21} = \frac{3 \times 3}{7 \times 3} = \frac{3}{7}$
- $\frac{7}{63} = \frac{7 \times 1}{7 \times 9} = \frac{1}{9}$
- $\frac{36}{45} = \frac{9 \times 4}{9 \times 5} = \frac{4}{5}$
- $\frac{4}{18} = \frac{2 \times 2}{9 \times 2} = \frac{2}{9}$
- $\frac{100}{45} = \frac{20 \times 5}{9 \times 5} = \frac{20}{9}$
- $\frac{14}{50} = \frac{7 \times 2}{25 \times 2} = \frac{7}{25}$
- $\frac{49}{14} = \frac{7 \times 7}{7 \times 2} = \frac{7}{2}$
- $\frac{39}{130} = \frac{13 \times 3}{13 \times 10} = \frac{3}{10}$
- $\frac{5}{35} = \frac{5 \times 1}{5 \times 7} = \frac{1}{7}$

Exercice 5 :

Donner la forme irréductible des nombres en écriture fractionnaire suivants :

$$\frac{28 \times 15}{35 \times 36} ; ; \frac{27 \times 16 \times 40}{56 \times 9 \times 16} ; ; \frac{36 \times 12 \times 15}{14 \times 18 \times 16} ; ;$$

$$\frac{14 \times 64}{48 \times 42} ; ; \frac{54 \times 64 \times 8}{28 \times 27 \times 32}$$

Correction de l'exercice 5 :

- $\frac{28 \times 15}{35 \times 36} = \frac{7 \times 4 \times 5 \times 3}{7 \times 5 \times 9 \times 4} = \frac{3}{9} = \frac{1}{3}$
- $\frac{27 \times 16 \times 40}{56 \times 9 \times 16} = \frac{9 \times 3 \times 8 \times 5}{8 \times 7 \times 9} = \frac{15}{7}$
- $\frac{36 \times 12 \times 15}{14 \times 18 \times 16} = \frac{4 \times 9 \times 4 \times 3 \times 5 \times 3}{7 \times 2 \times 9 \times 2 \times 4 \times 4} = \frac{45}{28}$
- $\frac{14 \times 64}{48 \times 42} = \frac{14 \times 8 \times 8}{8 \times 6 \times 14 \times 3} = \frac{8}{18} = \frac{4}{9}$
- $\frac{54 \times 64 \times 8}{28 \times 27 \times 32} = \frac{9 \times 6 \times 32 \times 2 \times 8}{7 \times 4 \times 9 \times 3 \times 32} = \frac{8}{7}$

Exercice 6 :

Comparer les fractions suivantes :

- $\frac{2}{3} \dots \frac{4}{3}$ $\frac{7}{5} \dots \frac{2}{15}$
- $\frac{5}{9} \dots \frac{2}{9}$ $\frac{2}{5} \dots \frac{11}{6}$
- $\frac{2}{7} \dots \frac{2}{3}$ $\frac{7}{9} \dots 1$
- $\frac{4}{7} \dots \frac{4}{9}$ $\frac{9}{7} \dots 1$
- $\frac{3}{4} \dots \frac{1}{2}$ $\frac{9}{7} \dots \frac{7}{9}$

Correction de l'exercice 6 :

- $\frac{2}{3} < \frac{4}{3}$ $\frac{7}{5} > \frac{2}{15}$
- $\frac{5}{9} > \frac{2}{9}$ $\frac{2}{5} < \frac{11}{6}$
- $\frac{2}{7} < \frac{2}{3}$ $\frac{7}{9} < 1$
- $\frac{4}{7} > \frac{4}{9}$ $\frac{9}{7} > 1$
- $\frac{3}{4} > \frac{1}{2}$ $\frac{9}{7} > \frac{7}{9}$

Exercice 7 :

Ranger dans l'ordre décroissant les nombres en écriture fractionnaire suivant :

$$\frac{4}{11} \quad ; \quad \frac{9}{33} \quad ; \quad \frac{1}{1,1} \quad ; \quad \frac{17}{11} \quad ; \quad \frac{35}{55}$$

Correction de l'exercice 7 :

On a : $\frac{4}{11} = \frac{4 \times 1}{11 \times 1} = \frac{4}{11}$
 On a : $\frac{9}{33} = \frac{9 \div 3}{33 \div 3} = \frac{3}{11}$
 On a : $\frac{1}{1,1} = \frac{1 \times 10}{1,1 \times 10} = \frac{10}{11}$

On a : $\frac{17}{11} = \frac{17 \times 1}{11 \times 1} = \frac{17}{11}$

On a : $\frac{35}{55} = \frac{35 \div 5}{55 \div 5} = \frac{7}{11}$

Alors : $\frac{17}{11} < \frac{10}{11} < \frac{7}{11} < \frac{4}{11} < \frac{3}{11}$

Donc : $\frac{17}{11} < \frac{35}{55} < \frac{1}{1,1} < \frac{4}{11} < \frac{9}{33}$

Exercice 8 :

Calculer et donner le résultat sous la forme d'une fraction irréductible :

$a = \frac{13}{6} + \frac{4}{6} \quad ; \quad b = \frac{17}{5} + \frac{3}{5}$
 $c = \frac{8}{3} - \frac{7}{3} \quad ; \quad d = \frac{33}{11} - \frac{12}{11}$
 $e = \frac{5}{6} + \frac{7}{18} \quad ; \quad f = \frac{8}{21} + \frac{4}{3}$
 $g = \frac{8}{7} - \frac{12}{35} \quad ; \quad h = \frac{9}{8} - \frac{25}{64}$
 $i = 4 + \frac{11}{6} \quad ; \quad j = \frac{4}{3} - 1$
 $k = \frac{7}{6} + \frac{1}{5} \quad ; \quad l = \frac{9}{2} + \frac{3}{13}$
 $m = \frac{8}{3} - \frac{7}{5} \quad ; \quad n = \frac{11}{5} - \frac{5}{11}$
 $o = \frac{3}{5} \times \frac{8}{7} \quad ; \quad p = \frac{4}{9} \times \frac{8}{11}$
 $q = \frac{15}{8} \times \frac{12}{20} \quad ; \quad r = \frac{9}{36} \times 16$
 $s = \frac{52}{18} \times \frac{27}{39} \quad ; \quad t = \frac{1641}{8888} \times \frac{1111}{1641}$

Correction de l'exercice 8 :

$a = \frac{13}{6} + \frac{4}{6} = \frac{13+4}{6} = \frac{17}{6}$
 $b = \frac{17}{5} + \frac{3}{5} = \frac{17+3}{5} = \frac{20}{5} = 4$
 $c = \frac{8}{3} - \frac{7}{3} = \frac{8-7}{3} = \frac{1}{3}$
 $d = \frac{33}{11} - \frac{12}{11} = \frac{33-12}{11} = \frac{21}{11}$
 $e = \frac{5}{6} + \frac{7}{18} = \frac{15}{18} + \frac{7}{18} = \frac{15+7}{18} = \frac{22}{18} = \frac{11}{9}$
 $f = \frac{8}{21} + \frac{4}{3} = \frac{8}{21} + \frac{28}{21} = \frac{8+28}{21} = \frac{36}{21} = \frac{12}{7}$
 $g = \frac{8}{7} - \frac{12}{35} = \frac{40}{35} - \frac{12}{35} = \frac{40-12}{35} = \frac{28}{35} = \frac{4}{5}$
 $h = \frac{9}{8} - \frac{25}{64} = \frac{72}{64} - \frac{25}{64} = \frac{72-25}{64} = \frac{47}{64}$
 $i = 4 + \frac{11}{6} = \frac{24}{6} + \frac{11}{6} = \frac{24+11}{6} = \frac{35}{6}$
 $j = \frac{4}{3} - 1 = \frac{4}{3} - \frac{3}{3} = \frac{4-3}{3} = \frac{1}{3}$
 $k = \frac{7}{6} + \frac{1}{5} = \frac{35}{30} + \frac{6}{30} = \frac{35+6}{30} = \frac{41}{30}$
 $l = \frac{9}{2} + \frac{3}{13} = \frac{117}{26} + \frac{6}{26} = \frac{117+6}{26} = \frac{123}{26}$

$$\begin{aligned}m &= \frac{8}{3} - \frac{7}{5} = \frac{40}{15} - \frac{21}{15} = \frac{40-21}{15} = \frac{19}{15} \\n &= \frac{11}{5} - \frac{5}{11} = \frac{121}{55} - \frac{25}{55} = \frac{121-25}{55} = \frac{96}{55} \\o &= \frac{3}{5} \times \frac{8}{7} = \frac{3 \times 8}{5 \times 7} = \frac{24}{35} \\p &= \frac{4}{9} \times \frac{8}{11} = \frac{4 \times 8}{9 \times 11} = \frac{4 \times 8}{9 \times 11} = \frac{32}{99} \\q &= \frac{15}{8} \times \frac{12}{20} = \frac{15 \times 12}{8 \times 20} = \frac{5 \times 3 \times 4 \times 3}{4 \times 2 \times 5 \times 4} = \frac{9}{8} \\r &= \frac{9}{36} \times 16 = \frac{9 \times 16}{36 \times 1} = \frac{9 \times 4 \times 4}{9 \times 4 \times 1} = \frac{4}{1} = 4 \\s &= \frac{52}{18} \times \frac{27}{39} = \frac{52 \times 27}{18 \times 39} = \frac{13 \times 4 \times 9 \times 3}{9 \times 2 \times 13 \times 3} = \frac{4}{2} = 2 \\t &= \frac{1641}{8888} \times \frac{1111}{1641} = \frac{1641 \times 1111}{8 \times 1111 \times 1641} = \frac{1}{8}\end{aligned}$$

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