

**Exercice 1 :**

Etape 1 : on met toutes les fractions au même dénominateur, ici c'est 60.

$$\frac{1}{4} = \frac{15}{60} \quad \frac{3}{5} = \frac{36}{60} \quad \frac{-3}{15} = \frac{-12}{60} \quad \frac{-5}{30} = \frac{-10}{60} \quad \frac{1}{12} = \frac{5}{60} \quad \frac{-1}{6} = \frac{-10}{60} \quad \frac{-7}{10} = \frac{-42}{60} \quad \frac{-5}{2} = \frac{-150}{60}$$

Etape 2 : on range les fractions ayant le même dénominateur dans l'ordre de leurs numérateurs.

$$\frac{-150}{60} < \frac{-42}{60} < \frac{-12}{60} < \frac{-10}{60} < \frac{5}{60} < \frac{15}{60} < \frac{36}{60}$$



Etape 3 : on réécrit les fractions telles qu'elles étaient données dans l'énoncé.

$$\frac{-5}{2} < \frac{-7}{10} < \frac{-3}{15} < \frac{-5}{30} = \frac{-1}{6} < \frac{1}{12} < \frac{1}{4} < \frac{3}{5}$$

Exercice 2 : On applique la même méthode pour ranger ces fractions dans l'ordre décroissant.

$$\frac{3}{7} = \frac{30}{70} \quad \frac{-2}{5} = \frac{-28}{70} \quad \frac{3}{10} = \frac{21}{70} \quad \frac{-3}{35} = \frac{-6}{70} \quad \frac{9}{14} = \frac{45}{70} \quad -1 = \frac{-70}{70}$$

$$\frac{45}{70} > \frac{30}{70} > \frac{21}{70} > \frac{-6}{70} > \frac{-28}{70} > \frac{-70}{70} \quad \text{donc} \quad \frac{9}{14} > \frac{3}{7} > \frac{3}{10} > \frac{-3}{35} > \frac{-2}{5} > -1$$

Exercice 3 :

$A = \frac{1}{5} + \frac{3}{10}$ $A = \frac{2}{10} + \frac{3}{10}$ $A = \frac{5}{10}$ $A = \frac{5 \times 1}{5 \times 2}$ <div style="border: 1px solid black; padding: 2px; display: inline-block;"> $A = \frac{1}{2}$ </div>	$D = \frac{1}{8} + \frac{5}{12}$ $D = \frac{3}{24} + \frac{10}{24}$ <div style="border: 1px solid black; padding: 2px; display: inline-block;"> $D = \frac{13}{24}$ </div>	$G = \frac{1}{3} + \frac{-2}{15} - \frac{-1}{10}$ $G = \frac{10}{30} + \frac{-4}{30} - \frac{-3}{30}$ $G = \frac{10 - 4 + 3}{30}$ $G = \frac{9}{30}$ $G = \frac{3 \times 3}{3 \times 10}$ <div style="border: 1px solid black; padding: 2px; display: inline-block;"> $G = \frac{3}{10}$ </div>
$B = \frac{3}{7} - \frac{5}{14}$ $B = \frac{6}{14} - \frac{5}{14}$ <div style="border: 1px solid black; padding: 2px; display: inline-block;"> $B = \frac{1}{14}$ </div>	$E = \frac{7}{10} - \frac{1}{15}$ $E = \frac{21}{30} - \frac{2}{30}$ <div style="border: 1px solid black; padding: 2px; display: inline-block;"> $E = \frac{19}{30}$ </div>	$H = \frac{-7}{4} + \frac{5}{12} - \frac{-5}{8}$ $H = \frac{-42}{24} + \frac{10}{24} - \frac{-15}{24}$ $H = \frac{-42 + 10 - (-15)}{24}$ $H = \frac{-42 + 10 + 15}{24}$ $H = \frac{25 - 42}{24}$ <div style="border: 1px solid black; padding: 2px; display: inline-block;"> $H = \frac{-17}{24}$ </div>
$C = 5 + \frac{3}{2}$ $C = \frac{10}{2} + \frac{3}{2}$ <div style="border: 1px solid black; padding: 2px; display: inline-block;"> $C = \frac{13}{2}$ </div>	$F = \frac{5}{3} - \frac{-3}{4}$ $F = \frac{20}{12} - \frac{-9}{12}$ $F = \frac{20 - (-9)}{12}$ $F = \frac{20 + 9}{12}$ <div style="border: 1px solid black; padding: 2px; display: inline-block;"> $F = \frac{29}{12}$ </div>	

$I = \frac{5}{7} - \frac{-3}{14} + \frac{1}{21}$ $I = \frac{30}{42} - \frac{-9}{42} + \frac{2}{42}$ $I = \frac{30 - (-9) + 2}{42}$ $I = \frac{30 + 9 + 2}{42}$ <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px auto;">$I = \frac{41}{42}$</div>	$J = \frac{3}{25} - \frac{11}{50} + \frac{3}{20}$ $J = \frac{12}{100} - \frac{22}{100} + \frac{15}{100}$ $J = \frac{12 - 22 + 15}{100}$ $J = \frac{27 - 22}{100}$ $J = \frac{5}{100}$ $J = \frac{5 \times 1}{5 \times 20}$ <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px auto;">$J = \frac{1}{20}$</div>	$K = \frac{-11}{6} + \frac{3}{2} - \frac{5}{4}$ $K = \frac{-22}{12} + \frac{18}{12} - \frac{15}{12}$ $K = \frac{-22 + 18 - (-15)}{12}$ $K = \frac{-22 + 18 + 15}{12}$ $K = \frac{33 - 22}{12}$ <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px auto;">$K = \frac{11}{12}$</div>	$L = 2 - \frac{3}{4} + \frac{-1}{8} - \frac{5}{6}$ $L = \frac{48}{24} - \frac{18}{24} + \frac{-3}{24} - \frac{20}{24}$ $L = \frac{48 - 18 - 3 - 20}{24}$ $L = \frac{48 - 41}{24}$ <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px auto;">$L = \frac{7}{24}$</div>
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Exercise 4 :

$A = 4 \times \frac{5}{3}$ $A = \frac{4}{1} \times \frac{5}{3}$ $A = \frac{4 \times 5}{1 \times 3}$ <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px auto;">$A = \frac{20}{3}$</div>	$B = 5 \times \frac{8}{15}$ $B = \frac{5 \times 8}{15}$ $B = \frac{5 \times 8}{3 \times 5}$ <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px auto;">$B = \frac{8}{3}$</div>	$C = 6 \times \frac{-2}{15}$ $C = -\frac{6 \times 2}{15}$ $C = -\frac{3 \times 2 \times 2}{3 \times 5}$ <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px auto;">$C = -\frac{4}{5}$</div>	$D = -4 \times \frac{-11}{12}$ $D = \frac{4 \times 11}{12}$ $D = \frac{4 \times 11}{4 \times 3}$ <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px auto;">$D = \frac{11}{3}$</div>	$E = -10 \times \frac{-7}{45}$ $E = -\frac{10 \times 7}{45}$ $E = -\frac{5 \times 2 \times 7}{5 \times 9}$ <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px auto;">$E = -\frac{14}{9}$</div>
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Exercise 5 :

$A = \frac{7}{3} \times \frac{5}{4}$ $A = \frac{7 \times 5}{3 \times 4}$ <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px auto;">$A = \frac{35}{12}$</div>	$B = \frac{-4}{5} \times \frac{6}{-7}$ $B = +\frac{4 \times 6}{5 \times 7}$ <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px auto;">$B = \frac{24}{35}$</div>	$C = \frac{-14}{25} \times \frac{15}{7}$ $C = -\frac{14 \times 15}{25 \times 7}$ $C = -\frac{7 \times 2 \times 5 \times 3}{5 \times 5 \times 7}$ <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px auto;">$C = -\frac{6}{5}$</div>	$D = \frac{-36}{49} \times \frac{-21}{-30}$ $D = -\frac{36 \times 21}{49 \times 30}$ $D = -\frac{6 \times 6 \times 7 \times 3}{7 \times 7 \times 6 \times 5}$ <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px auto;">$D = -\frac{18}{35}$</div>	$E = \frac{-99}{35} \times \frac{45}{44}$ $E = -\frac{99 \times 45}{35 \times 44}$ $E = -\frac{9 \times 11 \times 9 \times 5}{5 \times 7 \times 11 \times 4}$ <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px auto;">$E = -\frac{81}{28}$</div>	$F = \frac{-12}{-21} \times \frac{-49}{-24}$ $F = +\frac{12 \times 49}{21 \times 24}$ $F = \frac{12 \times 1 \times 7 \times 7}{7 \times 3 \times 12 \times 2}$ <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px auto;">$F = \frac{7}{6}$</div>
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Exercise 6 :

$A = \frac{2}{3} \div \frac{3}{4}$ $A = \frac{2}{3} \times \frac{4}{3}$ <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 5px auto;">$A = \frac{8}{9}$</div>	$B = \frac{7}{-8} \div \frac{1}{7}$ $B = -\frac{7}{8} \times 7$ $B = \frac{-49}{8}$	$C = \frac{-25}{13} \div \frac{-15}{2}$ $C = +\frac{25}{13} \times \frac{2}{15}$ $C = \frac{5 \times 5 \times 2}{13 \times 5 \times 3}$	$D = 12 \div \frac{18}{5}$ $D = 12 \times \frac{5}{18}$ $D = \frac{12 \times 5}{18}$	$E = -5 \div \frac{35}{4}$ $E = -5 \times \frac{4}{35}$ $E = -\frac{5 \times 4}{35}$	$F = \frac{14}{3} \div 21$ $F = \frac{14}{3} \times \frac{1}{21}$ $F = \frac{14 \times 1}{3 \times 21}$
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$G = \frac{-7}{25} \div \frac{-14}{-45}$ $G = -\frac{7}{25} \times \frac{45}{14}$ $G = -\frac{7 \times 9 \times 5}{5 \times 5 \times 7 \times 2}$ $G = -\frac{9}{10}$	$C = \frac{10}{39}$	$D = \frac{6 \times 2 \times 5}{6 \times 3}$ $D = \frac{10}{3}$	$E = -\frac{5 \times 4}{7 \times 5}$ $E = -\frac{4}{7}$	$F = \frac{2 \times 7 \times 1}{3 \times 3 \times 7}$ $F = \frac{2}{9}$
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Exercise 7 :

$A = \frac{5}{3} + \frac{1}{3} \times \frac{5}{2}$ $A = \frac{5}{3} + \frac{5}{6}$ $A = \frac{10}{6} + \frac{5}{6}$ $A = \frac{15}{6}$ $A = \frac{3 \times 5}{3 \times 2}$ $A = \frac{5}{2}$	$B = \frac{4}{5} \times \frac{15}{8} - \frac{7}{8} \times \frac{16}{21}$ $B = \frac{4 \times 15}{5 \times 8} - \frac{7 \times 16}{8 \times 21}$ $B = \frac{4 \times 3 \times 5}{5 \times 4 \times 2} - \frac{7 \times 8 \times 2}{8 \times 7 \times 3}$ $B = \frac{3}{2} - \frac{2}{3}$ $B = \frac{9}{6} - \frac{4}{6}$ $B = \frac{5}{6}$	$C = \frac{2}{5} - \left(\frac{1}{4} + \frac{5}{6}\right) \times \frac{5}{13}$ $C = \frac{2}{5} - \left(\frac{3}{12} + \frac{10}{12}\right) \times \frac{5}{13}$ $C = \frac{2}{5} - \frac{13}{12} \times \frac{5}{13}$ $C = \frac{2}{5} - \frac{13 \times 5}{12 \times 13}$ $C = \frac{2}{5} - \frac{5}{12}$ $C = \frac{24}{60} - \frac{25}{60}$ $C = \frac{-1}{60}$	$D = \frac{8}{7} + \frac{2}{7} \div \frac{5}{14}$ $D = \frac{8}{7} + \frac{2}{7} \times \frac{14}{5}$ $D = \frac{8}{7} + \frac{2 \times 14}{7 \times 5}$ $D = \frac{8}{7} + \frac{2 \times 2 \times 7}{7 \times 5}$ $D = \frac{8}{7} + \frac{4}{5}$ $D = \frac{40}{35} + \frac{28}{35}$ $D = \frac{68}{35}$
$E = \frac{1}{4} \div \left(\frac{2}{5} + \frac{1}{3}\right)$ $E = \frac{1}{4} \div \left(\frac{6}{15} + \frac{5}{15}\right)$ $E = \frac{1}{4} \div \frac{11}{15}$ $E = \frac{1}{4} \times \frac{15}{11}$ $E = \frac{1 \times 15}{4 \times 11}$ $E = \frac{15}{44}$	$F = \frac{7}{2} - \frac{1}{2} \times \frac{-8}{5}$ $F = \frac{7}{2} - \frac{-8}{10}$ $F = \frac{7}{2} + \frac{8}{10}$ $F = \frac{35}{10} + \frac{8}{10}$ $F = \frac{43}{10}$	$G = \frac{25}{12} \div \frac{15}{18} - \frac{27}{30}$ $G = \frac{25}{12} \times \frac{18}{15} - \frac{27}{30}$ $G = \frac{5 \times 5 \times 3 \times 6}{6 \times 2 \times 3 \times 5} - \frac{3 \times 9}{3 \times 10}$ $G = \frac{5}{2} - \frac{9}{10}$ $G = \frac{25}{10} - \frac{9}{10}$ $G = \frac{16}{10}$ $G = \frac{8 \times 2}{5 \times 2}$ $G = \frac{8}{5}$	$H = -\frac{5}{4} \div \frac{5}{3} + \frac{1}{3}$ $H = -\frac{5}{4} \times \frac{3}{5} + \frac{1}{3}$ $H = -\frac{5 \times 3}{4 \times 5} + \frac{1}{3}$ $H = -\frac{3}{4} + \frac{1}{3}$ $H = \frac{-9}{12} + \frac{4}{12}$ $H = \frac{-5}{12}$

