

EXERCICE N° 4 : Fractions irréductibles



Simplifier au maximum les trois fractions suivantes : $\frac{6525}{10440}$; $\frac{11515}{6909}$; $\frac{3186}{7965}$

Calculer et simplifier la somme suivante : $Z = \frac{6525}{10440} + \frac{11515}{6909} + \frac{3186}{7965}$



EXERCICE N° 4 : Calcul numérique— Nombres entiers, arithmétique

CORRECTION

Fractions irréductibles

$$\begin{array}{r|l} 6525 & 3 \\ 2175 & 3 \\ 725 & 5 \\ 145 & 5 \\ 29 & 29 \\ 1 & \end{array}$$

$$\begin{array}{r|l} 10440 & 2 \\ 5220 & 2 \\ 2610 & 2 \\ 1305 & 3 \\ 435 & 3 \\ 145 & 5 \\ 29 & 29 \\ 1 & \end{array}$$

$$\begin{array}{r|l} 11515 & 5 \\ 2303 & 7 \\ 329 & 7 \\ 47 & 47 \\ 1 & \end{array}$$

$$6525 = 3 \times 3 \times 5 \times 5 \times 29$$

$$10440 = 2 \times 2 \times 2 \times 3 \times 3 \times 5 \times 29$$

$$11515 = 5 \times 7 \times 7 \times 47$$

$$\begin{array}{r|l} 6909 & 3 \\ 2303 & 7 \\ 329 & 7 \\ 47 & 47 \\ 1 & \end{array}$$

$$\begin{array}{r|l} 3186 & 2 \\ 1593 & 3 \\ 531 & 3 \\ 177 & 3 \\ 59 & 59 \\ 1 & \end{array}$$

$$\begin{array}{r|l} 7965 & 3 \\ 2655 & 3 \\ 885 & 3 \\ 295 & 5 \\ 59 & 59 \end{array}$$

$$6909 = 3 \times 7 \times 7 \times 47$$

$$3186 = 2 \times 3 \times 3 \times 3 \times 59$$

$$7965 = 3 \times 3 \times 3 \times 5 \times 59$$

Ainsi :

$$\frac{6525}{10440} = \frac{3 \times 3 \times 5 \times 5 \times 29}{2 \times 2 \times 2 \times 3 \times 3 \times 5 \times 29} = \frac{5}{2 \times 2 \times 2} = \frac{5}{8}$$

$$\frac{11515}{6909} = \frac{5 \times 7 \times 7 \times 47}{3 \times 7 \times 7 \times 47} = \frac{5}{3}$$

$$\frac{3186}{7965} = \frac{2 \times 3 \times 3 \times 3 \times 59}{3 \times 3 \times 3 \times 5 \times 59} = \frac{2}{5}$$

$$\frac{6525}{10440} + \frac{11515}{6909} + \frac{3186}{7965} = \frac{5}{8} + \frac{5}{3} + \frac{2}{5} = \frac{5 \times 15}{8 \times 15} + \frac{5 \times 40}{3 \times 40} + \frac{2 \times 24}{5 \times 24} = \frac{75}{120} + \frac{200}{120} + \frac{48}{120} = \frac{75 + 200 + 48}{120} = \frac{323}{120}$$