Exercice

La suite (u_n) est arithmétique de raison r . On sait que $u_{50}=402$ et $u_{100}=808$.

1. Calculer la raison r et u_0 .
2. Calculer la somme $S=u_{50}+u_{51}+\ldots+u_{100}$.

Correction :

1.

$$\begin{cases} u_{50} = u_0 + 50r = 402 \\ u_{100} = u_0 + 100r = 808 \end{cases}$$

50r=808-402

50r=406

$$\boxed{r = \frac{406}{50} = \frac{203}{25}}$$

$$u_0 = 402 - 50 \times \frac{203}{25}$$

$$u_0 = 402 - 406$$

$$\boxed{u_0 = 4}$$

2. $S = u_{50} + u_{51} + \ldots + u_{100} = 51 \times \frac{u_{50} + u_{100}}{2}$

$$S = 51 \times \frac{402 + 808}{2}$$

$$S = 51 \times 605$$

S=**30 855**