

$x_i$	4	7
$n_i$	11	8

$$\bar{x} = \frac{n_1 x_1 + n_2 x_2}{n_1 + n_2} = \frac{4 \times 11 + 7 \times 8}{11 + 8}$$

$$\bar{x} = \frac{100}{19}$$

1) Calculatrice:  $\Delta \approx 1,48$  ( $\tilde{a} 10^{-2}$  près)

2) Définition:

$$V = \frac{\sum_{i=1}^2 n_i (x_i - \bar{x})^2}{N} = \frac{11 \left(4 - \frac{100}{19}\right)^2 + 8 \left(7 - \frac{100}{19}\right)^2}{11 + 8} = \frac{792}{361}$$

$$s = \sqrt{V} = \sqrt{\frac{792}{361}} = \frac{6\sqrt{22}}{19} \approx 1,48 \quad (\tilde{a} 10^{-2} \text{ près})$$

3) Théorème de König:

$$V = \frac{\sum x_i^2}{n_1 + n_2} - (\bar{x})^2 = \frac{n_1 x_1^2 + n_2 x_2^2}{n_1 + n_2} - (\bar{x})^2$$

$$V = \frac{11 \times 4^2 + 8 \times 7^2}{11 + 8} - \left(\frac{100}{19}\right)^2 = \frac{792}{361}$$

$$\Delta = \sqrt{V} = \sqrt{\frac{792}{361}} = \frac{6\sqrt{22}}{19} \approx 1,48 \quad (\tilde{a} 10^{-2} \text{ près})$$



