

## Laboratoria 4, zadanie 6 – rozwiązanie

**Zadanie 1.** Niech  $\bar{x^2} = \frac{1}{n} \sum_{i=1}^n x_i^2$ . Mamy

$$\begin{aligned} (1) \quad & \begin{cases} \bar{x} = E(X) \\ \bar{x^2} = E(X^2) \end{cases} \Leftrightarrow \begin{cases} \bar{x} = bc \\ \bar{x^2} = Var(X) + (E(X))^2 \end{cases} \\ (2) \quad & \Leftrightarrow \begin{cases} c = \frac{\bar{x}}{b} \\ \bar{x^2} = b^2c + b^2c^2 = b^2c(c+1) \end{cases} \\ (3) \quad & \Leftrightarrow \begin{cases} c = \frac{\bar{x}}{b} \\ \bar{x^2} = b^2 \frac{\bar{x}}{b} \left( \frac{\bar{x}}{b} + 1 \right) \end{cases} \\ (4) \quad & \Leftrightarrow \begin{cases} c = \frac{\bar{x}}{b} \\ \bar{x^2} = \bar{x^2} + b\bar{x} \end{cases} \\ (5) \quad & \Leftrightarrow \begin{cases} c = \frac{\bar{x}}{b} \\ b = \frac{\bar{x^2} - \bar{x}^2}{\bar{x}} \end{cases} \\ (6) \quad & \Leftrightarrow \begin{cases} c = \frac{\bar{x^2}}{\bar{x^2} - \bar{x}^2} \\ b = \frac{\bar{x^2} - \bar{x}^2}{\bar{x}} \end{cases} \end{aligned}$$