

Homework 0*Handed Out: January 22**Due: January 27***Name:** Jiatong Sun**PennKey:** jtsun**PennID:** 53378755**1 Multiple Choice & Written Questions**

1. a. C
 b. A
2. a. D
 b. A
3. a. D
 b. C
4. a. B
 b. Proof:

$$\begin{aligned} \text{Var}(X) &= E[(X - E[X])^2] \\ &= E[X^2 - 2X \cdot E[X] + E[X]^2] \\ &= E[X^2] - 2 \cdot E[X] \cdot E[X] + E[E[X]^2] \\ &= E[X^2] - 2E[X]^2 + E[X]^2 \\ &= E[X^2] - E[X]^2 \end{aligned}$$

2 Python Programming Questions

Complete questions 5 and 6 in the iPython notebook.