

(a) j is age.

$$j = (14, 15, 16, 16, 16, 22, 22, 24, 24, 25, 25, 25, 25, 25)$$

$$\langle j^2 \rangle = \frac{1}{14} \sum j^2 = \frac{3217}{7}, \quad \langle j \rangle = \frac{1}{14} \sum j = 21, \quad \langle j \rangle^2 = 441$$

(b)

$$\Delta j = j - \langle j \rangle = (-7, -6, -5, -5, -5, -5, 1, 1, 3, 3, 4, 4, 4, 4,)$$

$$\sigma^2 = \langle (\Delta j)^2 \rangle = \frac{1}{14} \sum (\Delta j)^2 = \frac{130}{7}, \quad \sigma = \sqrt{\frac{130}{7}}$$

(c)

$$\sigma^2 = \langle j^2 \rangle - \langle j \rangle^2 \tag{1.12}$$

$$\frac{130}{7} = \frac{3217}{7} - 441$$