

701

$$E(X+Y) = 2$$

$$V(X) = 4$$

$$E(X-Z) = -4$$

$$V(Y) = 3$$

$$E(Y-Z) = -3$$

$$V(Z) = 12$$

$$a) E[X] = -4 + E[Z] = -4 + EY + 3 =$$

$$= -4 + 3 + 1 - EX$$

$$EX = 0$$

$$EY = 2$$

$$EZ = +4$$

b)

702 X_1, X_2, X_3, X_4 - indep. RVs

$$Y = \frac{4}{3}X_1 - \frac{1}{2}X_2 - \frac{1}{3}X_3 - \frac{1}{3}X_4$$

$$EY = E\frac{4}{3}X_1 - E\frac{1}{2}X_2 - E\frac{1}{3}X_3 - E\frac{1}{3}X_4 =$$

$$= \frac{4}{3}EX_1 - \frac{1}{2}EX_2 - \frac{1}{3}EX_3 - \frac{1}{3}EX_4 =$$

$$= \frac{8m}{3} - m - m - \frac{2}{3}m = m \left(\frac{8-3-3-2}{3} \right) = 0$$

DY