

## Discrete Random Variables - Tutorial Sheet C

For tables A,B and C, answer the following questions

1. Compute the expected value of X, i.e.  $E(X)$ .
2. Compute the variance of X, i.e.  $\text{Var}(X)$ .
3. Compute the expected value of Y, i.e.  $E(Y)$ .
4. Compute the variance of Y, i.e.  $\text{Var}(Y)$ .
5. Compute the expected value of the product of X and Y, i.e.  $E(XY)$ .
6. Compute the covariance of X and Y, i.e.  $\text{Cov}(X,Y)$ .
7. Compute the correlation of X and Y, i.e.  $\text{Corr}(X,Y)$ .

- Table A

	Y= -2	Y= -1	Y= 1	Y = 3	Total
X = 2	0.15	0.10	0.05	0.20	0.50
X = 3	0.15	0.10	0.15	0.10	0.50
Total	0.30	0.20	0.20	0.30	1.00

- Table B

	Y= -1	Y = 1	Y =3	Total
X = -2	0.20	0.20	0.05	0.45
X = 1	0.25	0.20	0.10	0.55
Total	0.45	0.40	0.15	1.00

- Table C

	Y= -2	Y= -1	Y= 2	Y= 3	Total
X = 1	0.20	0.05	0.20	0.10	0.55
X = 2	0.25	0.05	0.05	0.10	0.45
Total	0.45	0.10	0.25	0.20	1.00