Section 10/7

1 Question 5.4

Let X, Y have distributions as below:

x	1	2	3	4
P(X=x)	0.4	0.1	0.1	0.4

y	1	2	3	4
P(Y=y)	0.1	0.4	0.4	0.1

In each part, say which of the two quantities is bigger (if any) and explain why.

a) E(X), E(Y)

b) SD(X), SD(Y)

2 Question 5.5

Let $p \in (0, 1)$ and let X be the number of spots showing on a flattened die that shows its six faces according to the following chances:

- $P(X = 1) = P(X = 6)$

- $P(X = 2) = P(X = 3) = P(X = 4) = P(X = 5)$

- $P(X = 1 \cup X = 6) = p$

Find SD(X) and explain why it is an increasing function of p.

3 Question 5.10

Let X be a random variable.

a) If you know $E(X)$ and $E(X^2)$, can you find SD(X)?

b) If you know $E(X)$ and $SD(X)$, can you find $E(X^2)$?

c) If you know $SD(X)$ and $E(X^2)$, can you find $E(X)$?