
1) A coin is weighted so that on each toss the probability of a head $3/7$ and the probability of a tail is $4/7$. The coin is tossed two times and X is the total number of heads obtained.

1a) list the values of X and their probabilities of occurrence.

1b) the probability that X is at most 1.

2) A random variable Y has the probability distribution shown below,

Value of Y	-2	-1	1	5	7	10
Probability	0.02	0.2	0.25	0.4	0.04	0.09

2a) Find the expectation of Y .

2b) Find the variance of Y .

2c) Find the standard deviation of Y .

2d) Draw the histogram of the probability function.

3) Let X be a random variable with mean 150 and variance 16.

3a) Estimate the probability $P(130 \leq X \leq 170)$

3b) For what value of k , $P(150 - k \leq X \leq 150 + k)$ is at least 0.84