

Binomial Distribution Practice

1. A box holds 240 eggs. The probability that an egg is brown is 0.05.

(a) Find the expected number of brown eggs in the box.

(2)

(b) Find the probability that there are 15 brown eggs in the box.

(2)

(c) Find the probability that there are at least 10 brown eggs in the box.

(3)

(Total 7 marks)

2. A factory makes switches. The probability that a switch is defective is 0.04. The factory tests a random sample of 100 switches.

(a) Find the mean number of defective switches in the sample.

(2)

(b) Find the probability that there are exactly six defective switches in the sample.

(2)

(c) Find the probability that there is at least one defective switch in the sample.

(3)

(Total 7 marks)

3. The probability of obtaining heads on a biased coin is $\frac{1}{3}$.

(a) Franklin tosses the coin three times. Find the probability of getting

(i) three heads;

(ii) two heads and one tail.

(5)

(b) Sowon plays a game in which she tosses the coin 12 times.

(i) Find the expected number of heads.

(ii) Sowon wins \$ 10 for each head obtained, and loses \$ 6 for each tail.
Find her expected winnings.

(5)

(Total 10 marks)

4. Ben tosses a fair coin five times. Calculate the probability he obtains

(a) exactly three heads;

(b) at least one head.

(Total 6 marks)