**STATISTICS ASSIGNMENT-10**

**Q1. A chicken lays n eggs. Each egg independently does or doesn’t hatch, with probability p of**

**hatching. For each egg that hatches, the chick does or doesn’t survive (independently of the**

**other eggs), with probability s of survival.**

**Let N ⇠ Bin(n, p) be the number of eggs which**

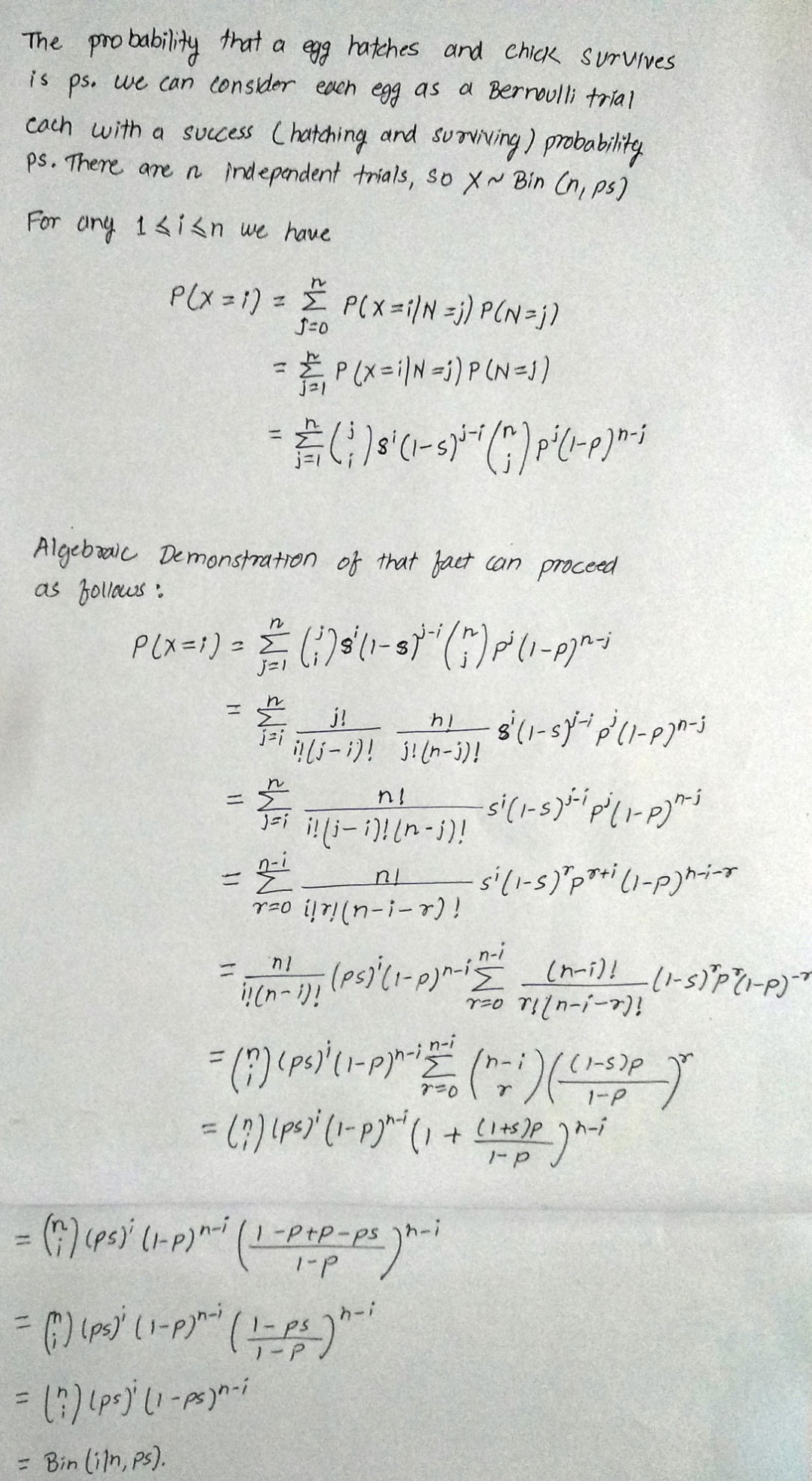
**hatch, X be the number of chicks which survive, and Y be the number of chicks which hatch**

**but don’t survive (so X + Y = N).**

**Find the marginal PMF of X, and the joint PMF of X and Y .**

**Are they independent?**

**Answer:**

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