

PROBLEM SET 12-6
(Binomial Distributions)

A fruit company guarantees that 90% of the pineapples it ships will be ripe within four days. Find each probability for a case of 12 pineapples.

1. All 12 are ripe within four days
2. At least 10 are ripe within four days
3. No more than 9 are ripe within four days

A study shows that 50% of the families in a community watch television during dinner. Suppose you select 10 families at random from this population. Find each probability.

4. $P(5 \text{ of the } 10 \text{ families watch television during dinner})$
5. $P(6 \text{ of the } 10 \text{ families watch television during dinner})$
6. $P(\text{at least } 5 \text{ of the } 10 \text{ families watch television during dinner})$

7. About 11% of the general population is left-handed. At a school with an average class size of 30, each classroom contains four left-handed desks. Does this seem adequate? Justify your answer.

8. A multiple choice test has 10 questions. Each question has five choices with only one correct answer. Statisticians consider a “rare” event to have less than a 5% chance of occurring. According to this standard, what grades would be rare on this test if you randomly guess? Justify your answer.