

**Test Your Understanding - Binomial**

1. Based on a study of parents' behavior at competitive youth gymnastics meets, researchers estimate the probability of a parent "yelling" at his or her child before, during, or after the meet is .10.
  - a) In a random sample of 20 parents attending a gymnastics meet, find the probability that at least 1 parent yells at his or her child before, during, or after the meet.
  - b) In a random sample of 20 parents attending a gymnastics meet, find the probability that more than one but fewer than five parents yell at their child before, during, or after the meet.
  - c) In a random sample of 20 parents attending a gymnastics meet, what is the probability that fewer than sixteen parents do not yell at their child before, during, or after the meet?
  - d) In a random sample of 250 parents attending a gymnastics meet, how many would you expect to yell at their child before, during, or after the meet?
  
2. The efficacy of insecticides is often measured by the dose necessary to kill a certain percentage of insects. Suppose a certain dose of a new insecticide is supposed to kill eighty percent of the insects that receive it.
  - a) If the claim is true (the insecticide really kills 80% of the exposed insects), and 25 insects are exposed to the insecticide, what is the probability that at least seventeen but less than twenty-two die?
  - b) If the claim is true, and twenty-five insects are exposed to the insecticide, what is the probability that fewer than fifteen die?
  - c) If the claim is true, and eight insects are exposed to the insecticide, what is the probability that fewer than two do not die?