Algebra II | Activity 0427 | Name:
Dr. Paul L. Bailey | Thursday, April 27, 2023

This was AP Statistics Quiz 5 on Tuesday, September 20, 2016.

If A is a set, the *cardinality* of A is the number of elements in A, and is denoted $|A|$.
The *sample space* of an experiment is the set of all *outcomes*.
An *event* is a subset of the sample space.
If S is a sample space and E is an event, the probability of E is

$$P(E) = \frac{|E|}{|S|}.$$

Example 1. Bob is a lobster in a tank with six other lobsters. The chef reaches in, randomly pulls out two lobsters, and throws them into a pot of boiling water, where they perish in agony. What are the chances that Bob survives?

(a) Describe one outcome.

(b) Find the sample space, and find the cardinality of the sample space.

(c) Find the event, and find the cardinality of the event.

(d) Find the probability of the event.

Example 2. A fair die is rolled three times. Sam bets that three consecutive increasing numbers will be rolled. What are Sam's chances of winning?

(a) Describe one outcome.

(b) Find the sample space, and find the cardinality of the sample space.

(c) Find the event, and find the cardinality of the event.

(d) Find the probability of the event.