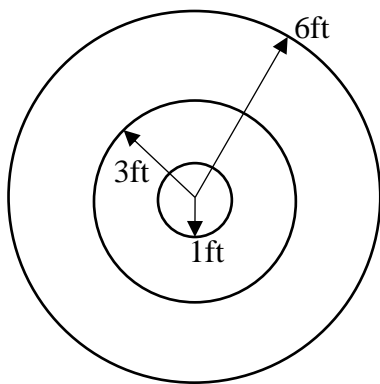


# PROB STAT HONORS Name \_\_\_\_\_

## 7.1 – RANDOM VARIABLES

- Construct a probability distribution for drawing a card from a deck of 40 cards consisting of ten cards numbered 1, ten cards numbered 2, fifteen cards numbered 3, and five cards numbered 4.
- A service organization in a large town organizes a raffle each month. One thousand raffle tickets are sold for \$1 each. Each has an equal chance of winning. First prize is \$300, second prize is \$200, and third prize is \$100. Let  $X$  denote the net gain from the purchase of one ticket. Construct the probability distribution for  $X$ .



- In a 10-Meter-Air-Pistol event, a 4.5 mm caliber air gun is shot from a distance of 10 meters into a circular target with a 6 feet radius whose center we call the origin. The outcome of this random experiment is a shot at the target. The shooter scores 10 points if he hits the bull's eye, which is a disk with radius of 1 foot centered at the origin; he scores 5 points if he hits the ring with inner radius of 1 foot and outer radius of 3 feet centered at the origin; and he scores 0 points if he shoots anywhere outside. Assume that the shooter will actually hit the target. Construct the probability distribution for the points scored in a single shot.

$x$	5	6	7	8	9	10
$cf$	0.14	0.35	0.59	0.77	0.93	1.00

- At a small rural airport, the number of arrivals per hour during the day has the cumulative probability distribution shown above. What is the probability that the airport has exactly seven arrivals on a randomly selected day?

$x$	4	5	6	7
$cf$	0.200	0.429	0.658	1.000

- As of 2013, the table above gives the cumulative probability distribution for number of games required to win the World Series in baseball. Describe the shape of the non-cumulative probability distribution.