

Name:

KEY

Math 153

Practice
Test #2

1. Given approximately 11% of the world's population has type B blood answer the following question:

The blood drive has a total of 150 donors. Assuming this is a typical number of donors for a school blood drive, what would be the mean and standard deviation of the number of donors who have Type B blood?

(Show all work)

$$\begin{aligned}\mu &= np \\ \mu &= (150)(.11) \\ \mu &= 16.5\end{aligned}$$

$$\begin{aligned}\sigma &= \sqrt{npq} \\ \sigma &= \sqrt{(150)(.11)(.89)} \\ \sigma &\approx 3.83\end{aligned}$$

2. If the probability of winning a game of chance at a carnival is 18% and you decide to play the game.

a) What is the probability that you win 3 out of 10 games played?

binomial dist
Prob(x=3)

$$P(x=3) = .1745$$

b) What is the probability that you do not get your first win until the 7th game?

geometric dist
Prob(x=7)

$$P(x=7) = .0547$$

c) What is the probability of you winning at least 2 games out of 8?

Binomial Dist
(cumulative)

$$Prob(x \geq 2) = 1 - Prob(x < 2) = .4366$$

3. You have a bag with 10 number tiles in it and the tiles are numbered from 1 - 10. You are going to select a tile and then record the number, then put the tile back in the bag and repeat the process.

a) What is the probability that if you select 500 tiles you would get less than 220 odd numbered tiles?

Binomial Dist

(cumulative)

$$P(x < 220)$$

$$P(x < 220) = .00316$$

b) What is the probability that you do not get your first odd numbered tile before your 5th selection?

Geometric Dist

$$P(x \geq 5) = 1 - P(x < 5) = .0625$$