

## 8.2

## Quick Notes

Ex) An urn contains 7 red and 3 green balls. If we reach in and randomly select 3 balls, with replacement, then;

- Find the probability that the first is green and the last two are red.
- Find the probability that the first is red, the second is green, and the third is red.
- Find the probability that the first two are red, but the third is green.
- Find the probability that we get exactly one green.

### Binomial Distribution

Bernoulli trials are:

- independent, identical
- probability of success is the same in each trial
- If the probability of a success in each trial is  $p$ , then the probability of observing  $k$  successes in  $n$  independent trials is given by  $B(n, k, p) = \binom{n}{k} p^k q^{n-k}$  (where  $q = 1 - p =$  probability of a failure)

### (BOARDWORK)

1) Bart takes a multiple choice quiz. There are 8 problems, each problem has possible answers A, B, C, or D. He guesses on all of the answers.

- Find the probability that he gets exactly 4 correct.
- Find the probability that he gets less than 6 correct.
- Find probability that he gets at least 1 correct

2) On any and every shot of an arrow, the probability that Biff hits the target is .15. If Biff shoots 17 arrows;

- Find the probability that he hits the target less than 3 times.
- Find the probability that he hits the target more than 3 times.

3) If we flip a coin 9 times, find the probability that we see at least 2 heads.

4) If we randomly draw 11 cards, with replacement, from a standard 52 card deck, then find the probability that we get

- exactly 4 face cards
- at least 2 face cards