

Recall that if  $p$  is the probability of “success” in a single trial of a binomial experiment, then the probability of  $k$  successes and  $n - k$  failures in  $n$  independent trials is

$$\binom{n}{k} p^k (1 - p)^{n-k}$$

Suppose a basketball player makes 80% of his free throws.

1. Find the probability that he makes exactly 8 out of ten free throws.
2. Find the probability that he makes exactly 9 out of ten free throws.
3. Find the probability that he makes all ten free throws.
4. Find the probability that he makes at least 8 out of ten free throws.