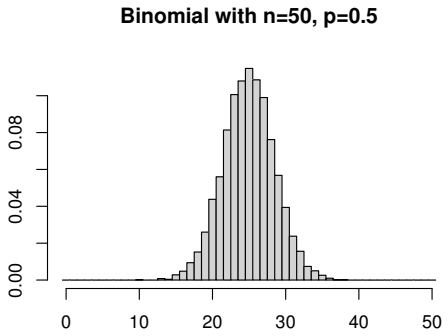
Set 16: The Normal Approximation to the Binomial Distribution

Stat 260 A01: June 19, 2024



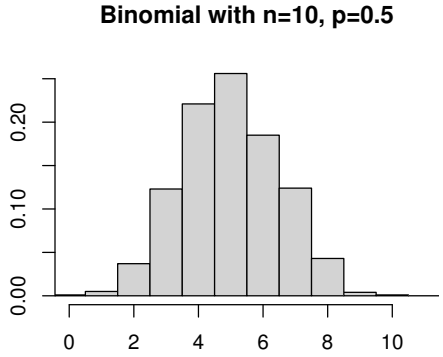
Let $X \sim Binomial(n, p)$ where,

1. $np \geq 5$
2. $n(1-p) \geq 5$

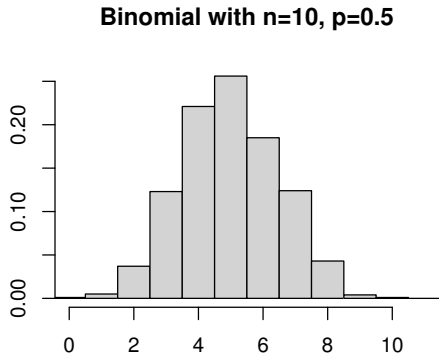
Then, the distribution of X is approximated by Y where

Example 1: Suppose that the binomial random variable X has $n = 10$, and $p = 0.5$. Using the Normal Approximation to the Binomial Distribution, approximate:

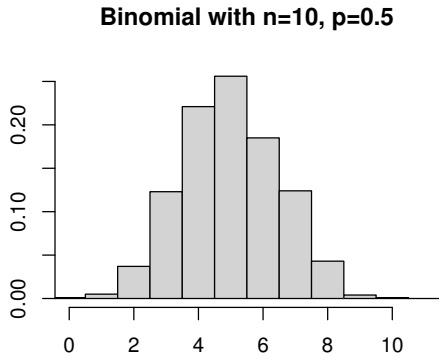
(a) $P(X = 4)$



(b) $P(X \geq 6)$



(c) $P(X < 3)$



Readings: Swartz 5.2 [EPS 3.7, 3.8, 3.9, 3.10]
Practice problems: EPS 3.61, 3.63, 3.65, 3.67, 3.69, 3.71, 3.79, 3.81, 3.83, 3.85, 3.87. Swartz 5.13, 5.19, 5.20