(Binomial)

7.2 #16 (#15 - #18)

Population $\rightsquigarrow \{S_1, S_2, S_3, F\}$

$p = \text{population proportion} = 0.75$, $q = 1 - p = .25$

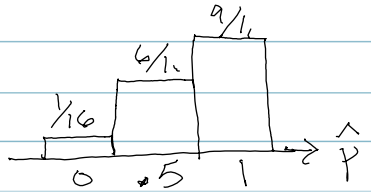
Pick every sample of size $n = 2$ (with replacement)

#15 =

$\{S_1,S_1\}$ $\{S_1,S_2\}$ $\{S_1,S_3\}$ $\{S_1,F\}$
$\{S_2,S_1\}$ $\{S_2,S_2\}$ $\{S_2,S_3\}$ $\{S_2,F\}$
$\{S_3,S_1\}$ $\{S_3,S_2\}$ $\{S_3,S_3\}$ $\{S_3,F\}$
$\{F,S_1\}$ $\{F,S_2\}$ $\{F,S_3\}$ $\{F,F\}$

$\hat{p} = \frac{x}{n}$ from each: $\{1, 1, 1, 0.5, 1, 1, 1, 0.5, 1, 1, 1, 0.5, 0.5, 0.5, 0.5, 0\}$ Sampling Distribution of sample proportions

($n = 2$)



note $np = 2(.75) = 1.5$ and $nq = 2(.25) = 0.5$ } Not @ least 10, so appx. normality conditions are not satisfied.

$\hat{p}$	freq
0	1
0.5	6
1	9

$\mu_{\hat{p}} = 0.75 = p$

$\sigma_{\hat{p}} = 0.3062$

$\sigma_{\hat{p}} = \sqrt{\frac{pq}{n}} = \sqrt{\frac{0.75 \cdot 0.25}{2}} = 0.3062$