EXAM 2 FORMULA SHEET

$\bar{x} = (\Sigma x_i)/n$ $\quad s^2 = \{1/(n-1)\}[\Sigma x^2_i - (1/n)(\Sigma x_i)^2] = [\Sigma(x_i - \bar{x})^2]/(n-1)$ $\quad \bar{p} = x/n$

Normal Distribution:	$E(X)=\mu$	$Var(X)=\sigma^2$	
Standard Normal Distribution:	$E(Z)=0$	$Var(Z)=1$	$Z=(x-\mu)/\sigma$
Sampling Distribution of $\bar{x}$:	$E(\bar{x})=\mu$	$Var(\bar{x})=\sigma^2/n$	$Z=(\bar{x}-\mu)/(\sigma/\sqrt{n})$
Sampling Distribution of $\bar{p}$:	$E(\bar{p})=p$	$Var(\bar{p})=p(1-p)/n$	$Z=(\bar{p}-p)/\sqrt{[p(1-p)/n]}$

Inference on μ, Known σ

$Z_{stat} = (\bar{x} - \mu_0) / (\sigma/\sqrt{n})$

C.I.: $\bar{x} \pm Z_{\alpha/2} (\sigma/\sqrt{n})$

Inference on μ, Unknown σ

$t_{stat} = (\bar{x} - \mu_0) / (s/\sqrt{n})$

C.I.: $\bar{x} \pm t_{\alpha/2,n-1} (s/\sqrt{n})$

Inference on p, Large Sample

$Z_{stat} = (\bar{p} - p_0) / \sqrt{[p_0(1-p_0)/n]}$

C.I.: $\bar{p} \pm Z_{\alpha/2} \sqrt{[\bar{p}(1-\bar{p})/n]}$