Population Distribution	Sample Size	Sample Distribution	Sample standard deviation	Hypothesis	Sig Level	Sample mean	P value of sample mean	
$X \sim N(21, 1.5^2)$	20	$\bar{X} \sim N\left(21, \frac{1.5^2}{20}\right)$	$\frac{1.5}{\sqrt{20}}$	$H_0: \mu = 21$ $H_1: \mu < 21$	5%	$\bar{x} = 19.8$	$P(\bar{X} < 19.8) =$ 0.00173 %	Yes
$X \sim N(21, 1.5^2)$	20	$\bar{X} \sim N\left(21, \frac{1.5^2}{20}\right)$	$\frac{1.5}{\sqrt{20}}$	$H_0: \mu = 21$ $H_1: \mu > 21$	5%	$\bar{x} = 20.4$	$P(\bar{X} > 20.4) =$ 96.3 %	No
$X \sim N(100, 5^2)$	36	$\bar{X} \sim N\left(100, \frac{5^2}{36}\right)$	$\frac{5}{6}$	$H_0: \mu = 100$ $H_1: \mu < 100$	5%	$\bar{x} = 98.5$	$P(\bar{X} < 98.5) =$ 3.59 %	yes
$X \sim N(100, 5^2)$	36	$\bar{X} \sim N\left(100, \frac{5^2}{36}\right)$	$\frac{5}{6}$	$H_0: \mu = 100$ $H_1: \mu > 100$	5%	$\bar{x} = 101.5$	$P(\bar{X} > 101.5) =$ 3.59 %	yes
$X \sim N(21, 3.5^2)$	40	$\bar{X} \sim N\left(21, \frac{3.5^2}{40}\right)$	$\frac{3.5}{\sqrt{40}}$	$H_0: \mu = 21$ $H_1: \mu < 21$	1%	$\bar{x} = 16.5$	$P(\bar{X} < 16.5) =$ 2.12×10^{-14} %	yes
$X \sim N(100, 5^2)$	20	$\bar{X} \sim N\left(100, \frac{5^2}{20}\right)$	$\frac{5}{\sqrt{20}}$	$H_0: \mu = 100$ $H_1: \mu < 100$	5%	$\bar{x} = 95$	$P(\bar{X} < 95) =$ 3.87×10^{-4} %	yes
$X \sim N(100, 5^2)$	30	$\bar{X} \sim N\left(100, \frac{5^2}{30}\right)$	$\frac{5}{\sqrt{30}}$	$H_0: \mu = 100$ $H_1: \mu < 95$	5%	$\bar{x} = 95$	$P(\bar{X} < 95) =$ 2.16×10^{-6} %	yes