Math

① 7.2.1.1 c

sample size 10

$sd(\bar{x}) = 9$

$9 = \frac{y}{\sqrt{10}}$

$9\sqrt{10} = y$

$1 = \frac{9\sqrt{10}}{\sqrt{s}}$

$(\sqrt{s})^2 = (9\sqrt{10})^2$

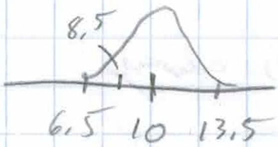
$s = 810$

you need a sample size of 810

② 7.2.1.2

mean 10

sd 3.5



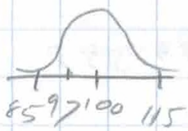
1 − pnorm(8.5, mean=10, sd=3.5) = 1 − 0.3341176

$pr(X > 8.5) = .6659$

③ 7.2.2.1

mean 100

sd 15



1 − pnorm(97, 100, 15) = 1 − .4207 = .5973

$pr(X > 97) = .5973$

④ 7.2.2.2 (b)

$\mu = 3.1$ minutes

$\sigma = 1.2$

$\bar{X} = 3.3$ — 50

Normal($\mu_{\bar{X}} = 3.1$, $\sigma_{\bar{X}} = \frac{1.2}{\sqrt{50}} = 0.1697$

1 − pnorm(3.3, 3.1, 0.1697) = 0.11973

⑤ 7.2.3.3

$se(\bar{x}) = \frac{50}{\sqrt{40}} = 7.9057$

$\bar{x} \pm 2\,se(\bar{x}) = 250 \pm 2 \times 7.9057 = (234.18, 265.81)$

6 7.3.1.1

a)

$$se(\hat{p}) = \sqrt{\frac{.39 \times .61}{90}} = .0514$$

b) $.39 \pm 2(.0514) = (.287, .493)$

- no, it is not possible to have a ses of 23% because the lowest is 28.7%
- it is 2 standard errors away

7 a) $1.350 < \text{p-value} < 1.771$

b) $Pr(t \leq 2.228) - Pr(T \leq -2.228) = 0.9499882$

c) 0.4810791

D) 1.439756 and -0.4397557