

QUIZ 3 - SOLUTIONS  
BUSINESS STATISTICS  
FALL 2009

1a.  $P(X > 750\,000)$

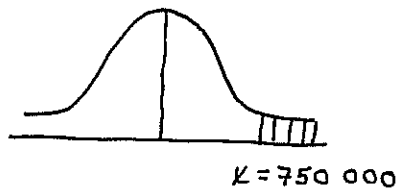
$\mu = 634\,961$

$\sigma = 441\,690$

$= P(Z > 0.26)$

$= 0.5 - 0.1026$

$= \boxed{0.3974}$



$Z = \frac{750\,000 - 634\,961}{441\,690}$

$= 0.26$

b.  $P(\bar{X})$  is what we're dealing with

$= P(600\,000 < \bar{X} < 700\,000)$

$= P(-0.35 < Z < 0.66)$

$= 0.1368 + 0.2454$

$= \boxed{0.3822}$

so  $\sigma_{\bar{x}} = \sigma/\sqrt{n}$



$Z = \frac{600\,000 - 634\,961}{441\,690/\sqrt{20}}$

$= -0.35$

$Z = \frac{700\,000 - 634\,961}{441\,690/\sqrt{20}} = 0.66$

2.

$n = 40$

$\sigma = 3.2$

$\mu = 25$

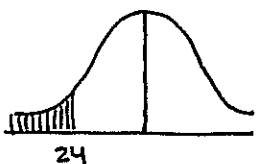
$\sigma_{\bar{x}} = \frac{3.2}{\sqrt{40}}$

$P(\bar{X} \leq 24)$

$= P(Z \leq -1.98)$

$= 0.5 - 0.4761$

$= \boxed{0.0239}$



$Z = \frac{24 - 25}{3.2/\sqrt{40}} = -1.98$

3. a. A value near the population mean of 500  
 b. A standard deviation near  $\sigma/\sqrt{n}$ ,  $\frac{1}{\sqrt{36}} = 5$   
 c. Approximately normal since  $n > 30$