Test Results

A x

B xxxx

C xxx

D xx

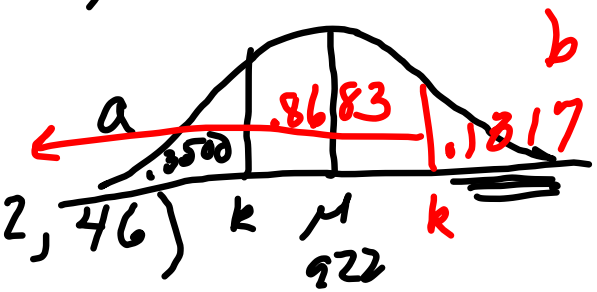
F everyone else

avg. 57

Yellow
2nd ①

$\mu = 922$, $\sigma = 46$

a) k s.t. $P(x < k) = .3500$



$k = \text{invNorm}(.3500, 922, 46)$

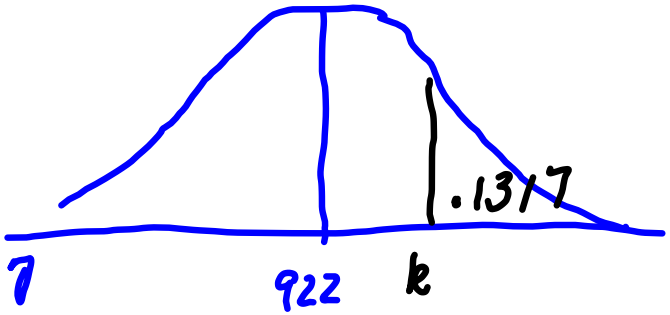
≈ 904.28

b) $P(x > k) = .1317$

$1 - .1317 = .8683$

$k = \text{invNorm}(.8683, 922, 46)$

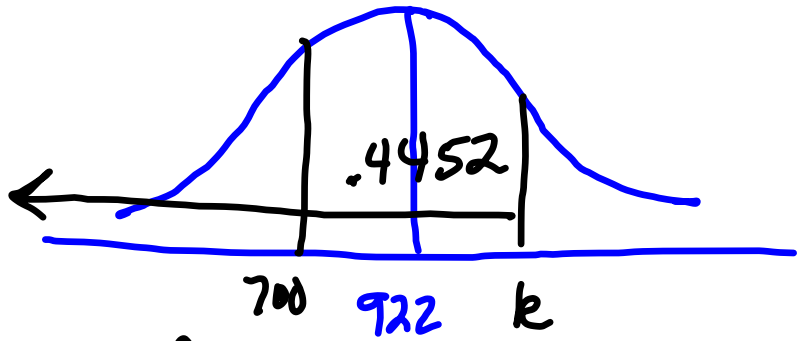
≈ 973.45



$P(x > 973.46) = .1317$

k

c) $P(700 < x < k) = .4452$



normalcdf (-E99, 700, 922, 46)

≈ 0 6.97×10^{-7}

.000000697 ← ≈ 0

.4452

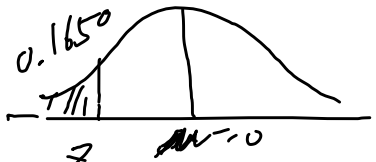
.445200697

$k = invNorm(.4452007, 922, 46)$

≈ 915.66

#2

a)



$z = \text{invNorm}(0.1650, 0, 1)$

≈ -0.9741

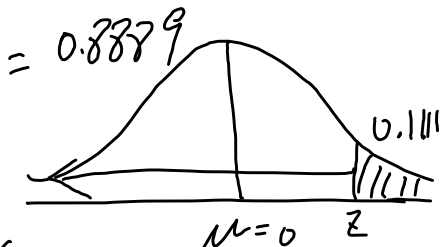
b)

$0.5 + 0.2346$

$= 0.7346$

$z = \text{invNorm}(0.7346) \approx 0.6268$

c)

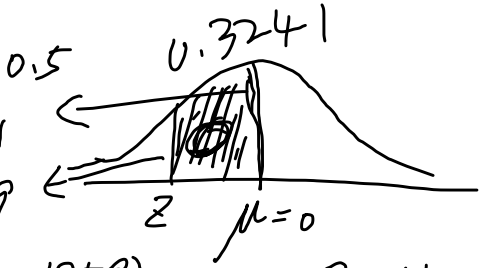


$1 - 0.1111 = 0.8889$

$= \text{invNorm}(0.8889)$

≈ 1.2207

d)

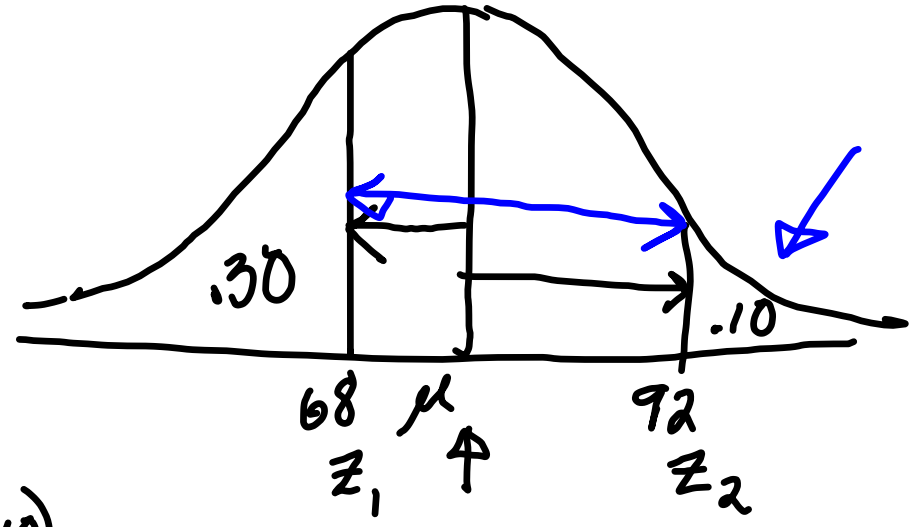


$0.5 - 0.3241$

$= \underline{0.1759}$

$= \text{invNorm}(0.1759) \approx -0.9311$

4 yellow



$z_1 = \text{invNorm}(.30)$

$\approx -.5244$

$z_2 = \text{invNorm}(1-.10)$

≈ 1.2816

$.5244 + 1.2816 = 1.8060$

$\sigma = \frac{92-68 \text{ points}}{1.8060 \text{ sd}} = \frac{24}{1.8060} \approx 13.29 \frac{\text{points}}{\text{s.d.}}$

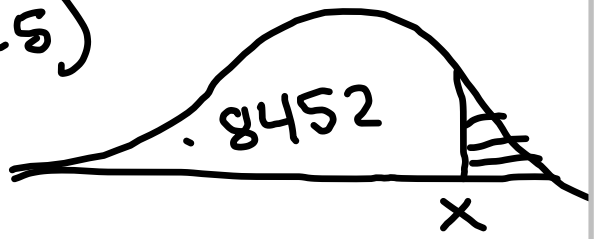
$\mu = 68 + .5244(13.29) \approx 74.97$ (# of σs · σ)

$\mu = 92 - 1.2816(13.29) \approx 74.97$

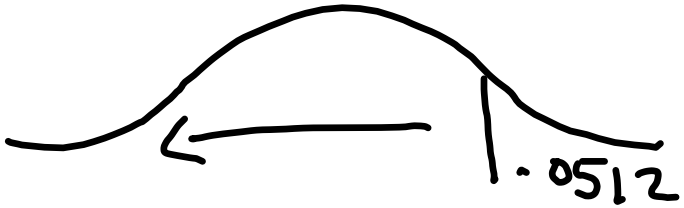
3) green

a) $X = \text{invnorm}(.8452, 200, 25)$

$X \approx 225.40$



b)



$1 - 0.0512 = .9488$

$X = \text{invnorm}(.9488, 200, 25)$

≈ 240.83

5 yellow $\mu = 114.8$, $\sigma = 13.1$

a) $P(x > 140) = \text{normcdf}(140, E99, 114.8, \frac{13.1}{1})$

$\approx .0272$

b) $n = 10$ $\quad \sigma_{\bar{x}} = \frac{13.1}{\sqrt{10}}$

$P(\bar{x} > 140) = \text{normalcdf}(140, E99, 114.8, 13.1/\sqrt{10})$

$\approx 5.9142 \times 10^{-10}$ ←

≈ 0 $\quad .0000000005$

c) $n = 35$

$P(\bar{x} > 110) = \text{normalcdf}(110, E99, 114.8, 13.1/\sqrt{35})$

$\approx .9849$

d) 10%

$P(x < k) = .10$

$k = \text{invNorm}(.10, 114.8, 13.1)$

≈ 98.01

6 yellow

phat
p-hat

$\hat{p} = \frac{2060}{2822} = .73$

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

$q = 1 - p$

$n = 2822$

2060 73%

$\hat{p} = .73$

$p = .75$

$\sigma_{\hat{p}} = \sqrt{\frac{(.75)(.25)}{2822}} \approx .008151$

$\sigma_{\hat{p}} = \sqrt{\frac{pq}{n}}$

a) $P(\hat{p} > .73) = \text{normalcdf}(.73, E99, .75, .008151)$

$\approx .9929$

b) $P(.73 < \hat{p} < .75) = \text{normalcdf}(.73, .75, .75, .008151)$

$\approx .4929$

c) $P(\hat{p} < .73) = \text{normalcdf}(-E99, .73, .75, .008151)$

$\approx .0071$

d) $.75 - .035 = .715$

$.75 + .035 = .785$

$P(.715 < \hat{p} < .785) = \text{normalcdf}(.715, .785, .75, .008151)$

$\approx .9998$

≈ 1

e) $.75 + .03 = .78$

$P(\hat{p} > .78) = \text{normalcdf}(.75, E99, .75, .008151)$

$\approx .00116$

$\approx .0011$