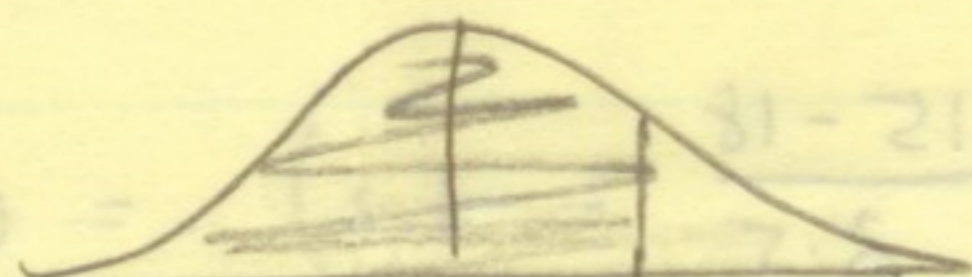


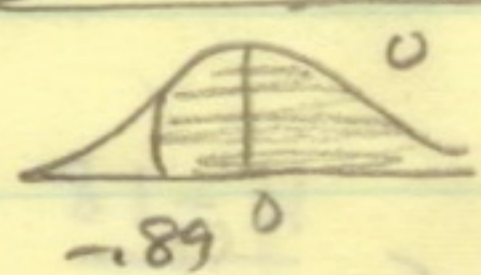
6.1

a) left of 1.43

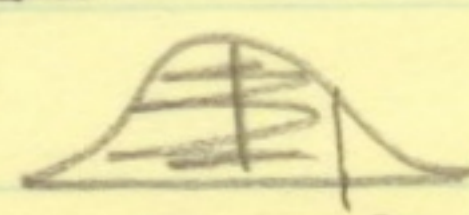


= 0.9236

b) right of -0.89

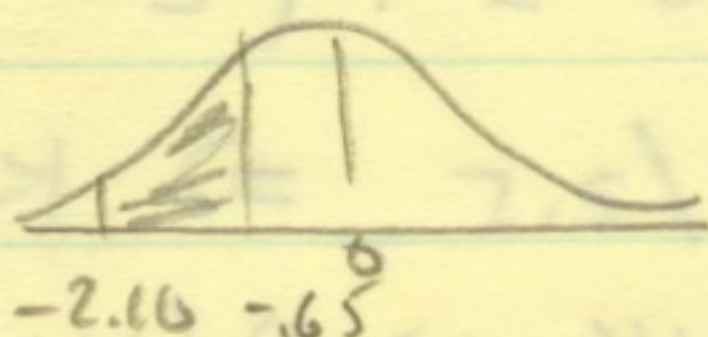


1.43



= 0.8133

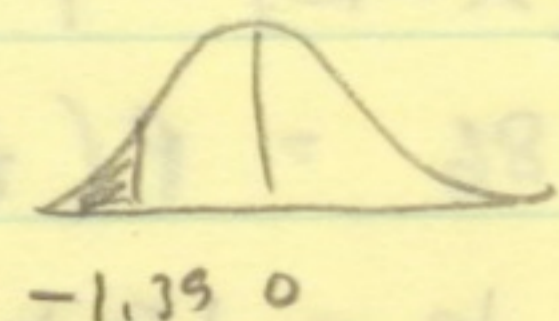
c) b/w -2.16 + -0.65



= .2578 - 0.0154 = .2424

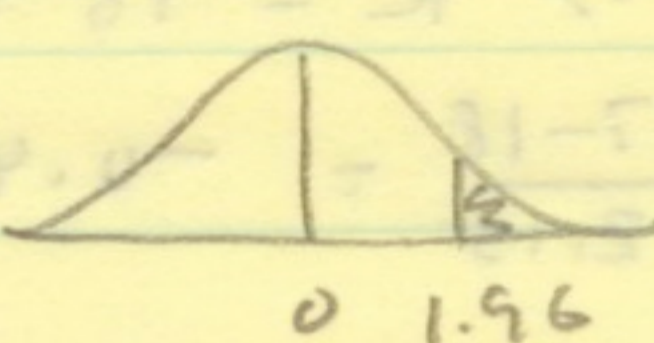
= normalcdf(-2.16, -0.65) = .2425

d) left of -1.39

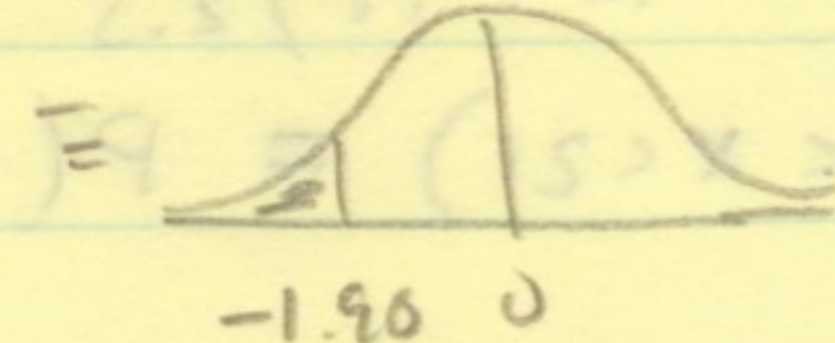


= .0823

e) right of 1.96



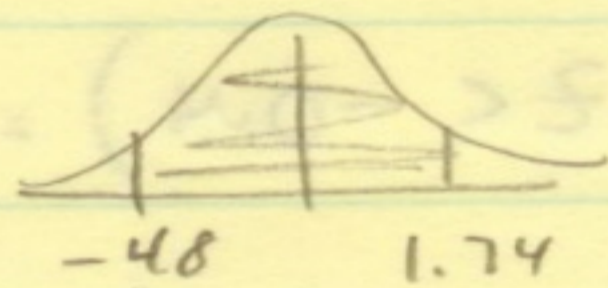
0 1.96



-1.96 0

= .0250

f) b/w -0.48, 1.74

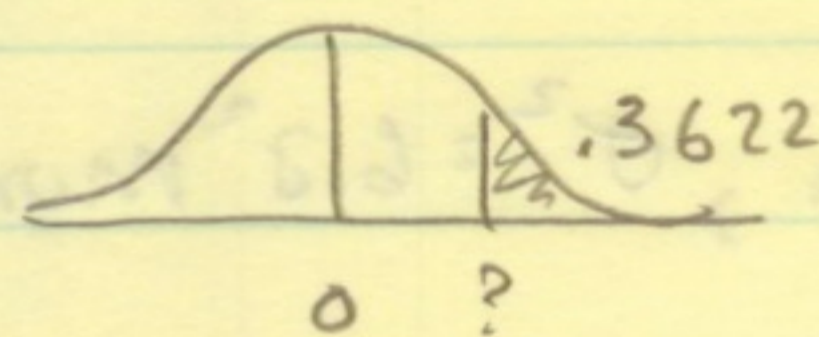


-0.48 1.74

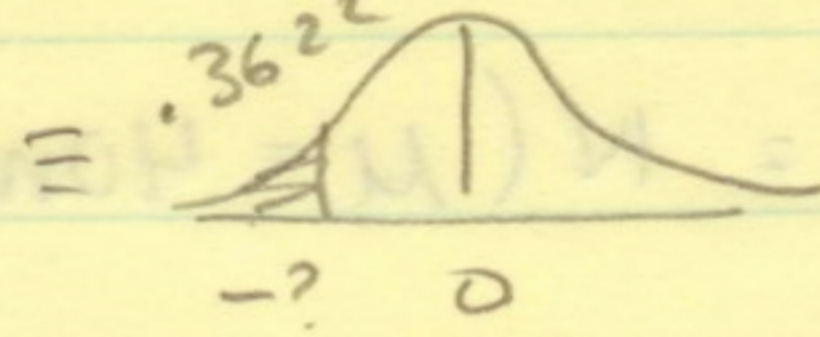
= 0.9591 - 0.3156 = 0.6435

6.2

a)



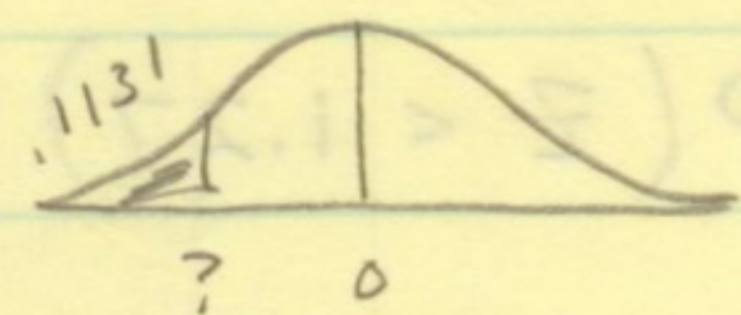
0 ?



-? 0

= .3622 = .3622 = -? = -0.35 so ? = .35

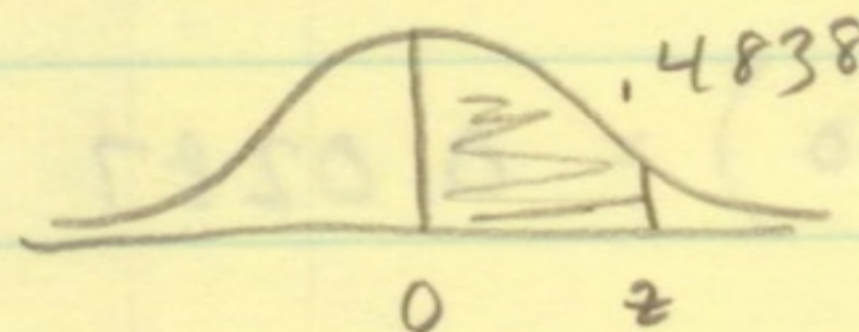
b)



? 0

? = -1.21

c)



0 z

.4838

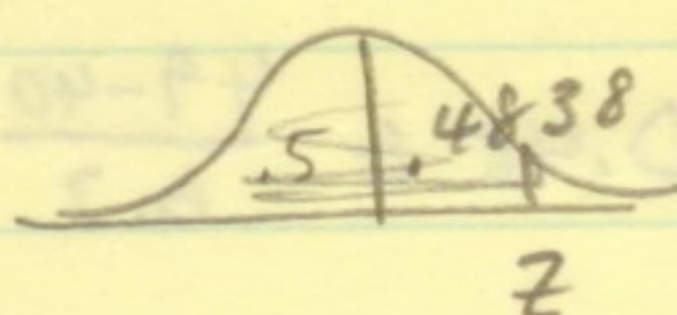


-z

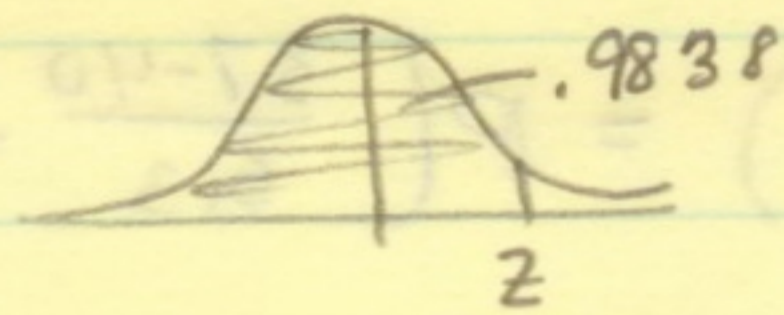
= .5 - .4838 = .0162

-z = -2.14 z = 2.14

or



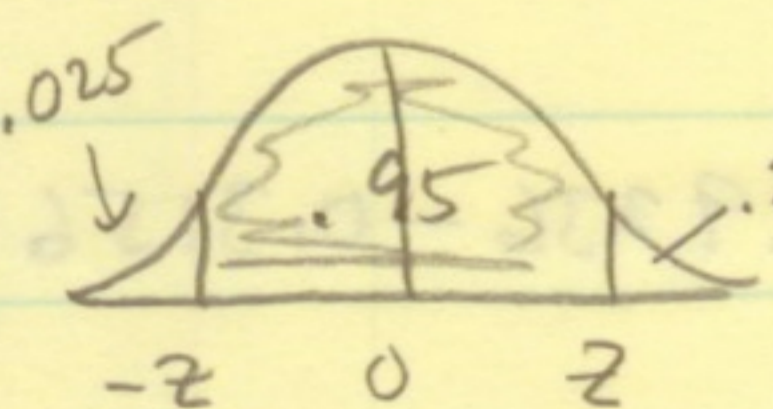
z



z

z = 2.14

d)



-z 0 z

.025

.95

.025

$P(z < -z) = .025 \Rightarrow -z = -1.96 \Rightarrow z = 1.96$

6.3

a) $P(z < k) = 0.0427$

$k = -1.72$

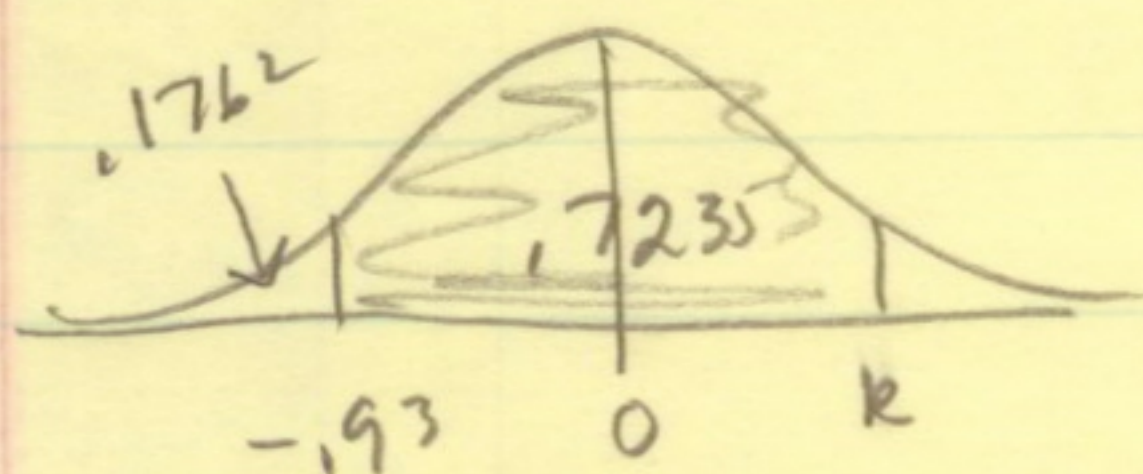
b) $P(z > k) = .2946 \Rightarrow P(z < k) = 1 - .2946 = .7054$

$k = 0.54$

3

c) $P(-0.93 < X < k) = 0.7235 \Rightarrow P(X < k) = 0.7235 + P(z < -0.93)$

$= 0.7235 + 0.1762 = 0.8997$



.1762

.7235

-0.93 0 k

so $k = 1.28$

6.8 $L = \text{length of nyl loops}$ $L = N(30, 4)$.

$$\begin{aligned} \text{a) } P(L > 31.7) &= 1 - P(L < 31.7) = 1 - P\left(Z < \frac{31.7 - 30}{2} = 0.85\right) \\ &= 1 - 0.8023 = 0.1977 \text{ or } P(L > 31.7) = P\left(Z > \frac{31.7 - 30}{2} = 0.85\right) \\ &= P(Z < -0.85) = 0.1977 \end{aligned}$$

3

$$\begin{aligned} \text{b) } P(29.3 \leq L \leq 33.5) &= P\left(\frac{29.3 - 30}{2} = -0.35 \leq Z \leq \frac{33.5 - 30}{2} = 1.75\right) \\ &= P(Z < 1.75) - P(Z < -0.35) = 0.9599 - 0.3632 = 0.5967 \end{aligned}$$

$$\text{c) } P(L < 25.5) = P\left(Z < \frac{25.5 - 30}{2} = -2.25\right) = 0.0122$$

6.10 $D = \text{diameter} = N(\mu = 10, \sigma^2 = 0.03^2)$.

$$\text{a) } P(D > 10.075) = P\left(Z > \frac{10.075 - 10}{0.03} = 2.5\right) = P(Z \leq -2.5) = 0.0062$$

$$\text{b) } P(9.97 \leq D \leq 10.03) = P\left(\frac{9.97 - 10}{0.03} = -1 \leq Z \leq \frac{10.03 - 10}{0.03} = +1\right)$$

3

$$= P(Z < +1) - P(Z < -1) = 0.8413 - 0.1587 = 0.6826$$

$$\text{c) } P(D < d) = 0.15 = P\left(Z < \frac{d - 10}{0.03}\right) = 0.15 = P(Z < -1.04)$$

$$\Rightarrow \frac{d - 10}{0.03} = -1.04 \Rightarrow d = 10 - 1.04(0.03) = 9.9688$$

