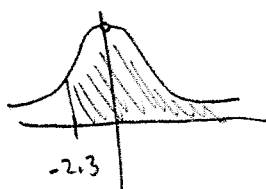
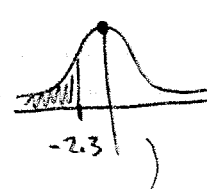


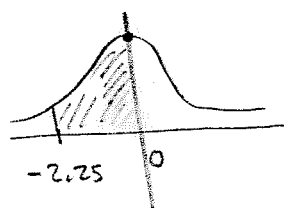
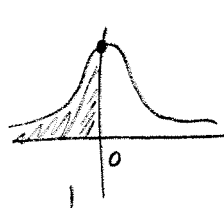
Homework 6 MATH 1550 Fall 2019

1

§5.1
#20)


$$= 1 - \text{TABLE}$$

$$= 1 - 0.0107$$
$$= 0.9893$$

#21)


$$= \text{TABLE} - \text{TABLE}$$

$$= 0.5 - 0.0122$$
$$= 0.4878$$


§5.2

#10) Given: $\mu = 21.1$, $\sigma = 5.3$

a) Find $P(x < 16)$

Soln: $\frac{x - \mu}{\sigma} < \frac{16 - \mu}{\sigma} \Rightarrow z < \frac{16 - 21.1}{5.3}$

$$\Rightarrow z < -0.9623$$

$$P(z < -0.96) = \text{TABLE} = 0.1685$$


b) Find $P(19 < x < 24)$

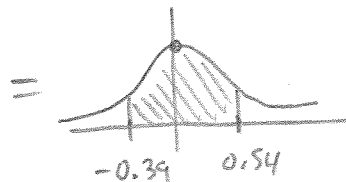
(2)

Soln: $\frac{19 - \mu}{\sigma} < \frac{x - \mu}{\sigma} < \frac{24 - \mu}{\sigma}$

$$\frac{19 - 21.1}{5.3} < z < \frac{24 - 21.1}{5.3}$$

$$-0.39 < z < 0.54, \text{ so}$$

$$P(19 < x < 24) = P(-0.39 < z < 0.54)$$



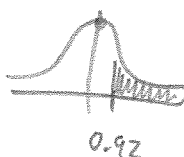
$$= 0.7054 - 0.3483$$

$$= 0.3571$$

c) $P(x > 26)$

Soln: $x > 26 \Rightarrow \frac{x - \mu}{\sigma} > \frac{26 - \mu}{\sigma} \Rightarrow z > \frac{26 - 21.1}{5.3}$
 $\Rightarrow z > 0.92$

So,

$$P(x > 26) = P(z > 0.92) = $$

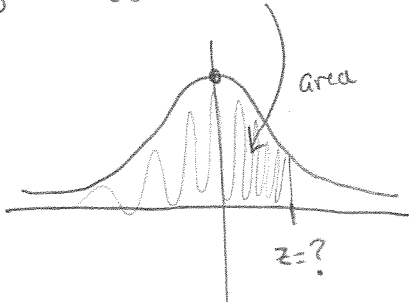
$$= 1 - $$

$$= 1 - 0.8212 = 0.1788$$

§5.3

3

#11) $P_{88} = 0.88$



from table
→

0.88 is between
0.8790 and 0.8810

↓ TABLE in Reverse ↓

$z = 1.17$

$z = 1.18$

Average = 1.175

#32) Given: $\mu = 69.4$, $\sigma = 2.9$

a) $P_{90} = 0.9 \xrightarrow[\text{(need to average two)}]{\text{reverse lookup}} z = 1.285$

Using $x = z\sigma + \mu$, we find the height representing the 90th percentile to be

$$x = (1.285)(2.9) + 69.4 = 73.1265 \text{ inches}$$

b) first quartile = $P_{25} = 0.25 \xrightarrow[\text{(avg two)}]{\text{reverse lookup}} z = -0.675$

$$\Rightarrow x = z\sigma + \mu = (-0.675)(2.9) + 69.4 = 67.4425 \text{ inches}$$