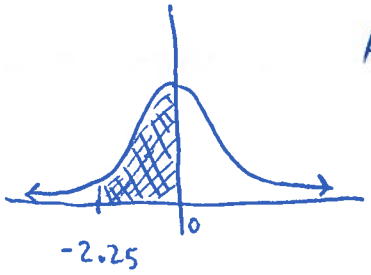
HW7 MATH 1550 FALL 2018

Section 5.1

#21



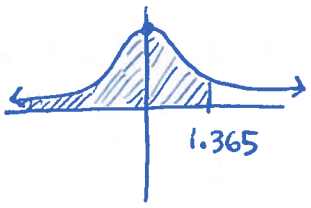
$$\text{Area} = P(-2.25 < z < 0)$$

$$= P(z<0) - P(z<-2.25)$$

$$\overset{\text{TABLE}}{=} 0.5 - 0.0122$$

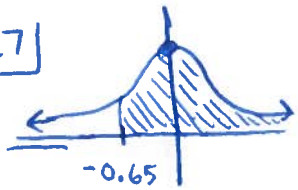
$$= 0.4878$$

#26



$$P(z<1.365) \overset{\text{TABLE}}{=} 0.9139$$

#27



$$P(z>-0.65) = 1 - P(z<-0.65)$$

$$\overset{\text{TABLE}}{=} 1 - 0.2578$$

$$= 0.7422$$

Section 5.2

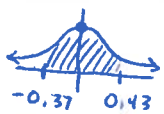
#9 $\mu = 21.3$, $\sigma = 6.2$

a) $P(x<15) \overset{\text{z-score}}{=} P\left(\frac{x-\mu}{\sigma} < \frac{15-\mu}{\sigma}\right)$

$$= P(z < -1.01)$$

$$\overset{\text{TABLE}}{=} 0.1587$$

b) $P(19<x<24) \overset{\text{z-score}}{=} P\left(\frac{19-\mu}{\sigma} < \frac{x-\mu}{\sigma} < \frac{24-\mu}{\sigma}\right)$



$$= P(-0.37 < z < 0.43)$$

$$= P(z<0.43) - P(z<-0.37)$$

$$\overset{\text{TABLE}}{=} 0.6664 - 0.3557$$

$$= 0.3107$$

c) $P(x>34) = P\left(\frac{x-\mu}{\sigma} > \frac{34-\mu}{\sigma}\right)$

$= P(z>2.04)$

$= 1 - P(z<2.04)$

TABLE $= 1 - 0.9793$

$= 0.0207$

d) event in part (c) is unusual ~ 2% probability of occurring

Section 5.3

#32 $\mu = 69.4 \quad \sigma = 2.9$

a) $P_{90} = 0.9$

↓ table (reverse lookup)

$z = 1.19$

↓ reverse z-score

$z = \frac{x-\mu}{\sigma} \longleftrightarrow z\sigma + \mu = x$

$x = z\sigma + \mu = 72.851$

b) first quartile $= P_{25} = 0.25$

↓ table (reverse lookup)

$z = -0.67$

↓ reverse z-score

$x = z\sigma + \mu = 67.457$

#37 $\mu = 9.5$, $\sigma = 2.8$

a) "smallest of top 25%" $= P_{75} = 0.75$

↓ reverse lookup

$z = 0.68$

↓ reverse z-score

$x = z\sigma + \mu = 11.404$

b) "largest of bottom 15%" $= P_{15} = 0.15$

↓ reverse lookup

$z = -1.03$

↓ reverse z-score

$x = z\sigma + \mu = 6.616$