Problem 1

mean = 170 SD = 90

P(x ≤ 215) = _____

This means SHADE LEFT of 215

P(x ≤ 215) ≈ 0.6915

P(z ≤ 0.5) = _____

This means SHADE LEFT of 0.5

P(z ≤ 0.5) ≈ 0.6915

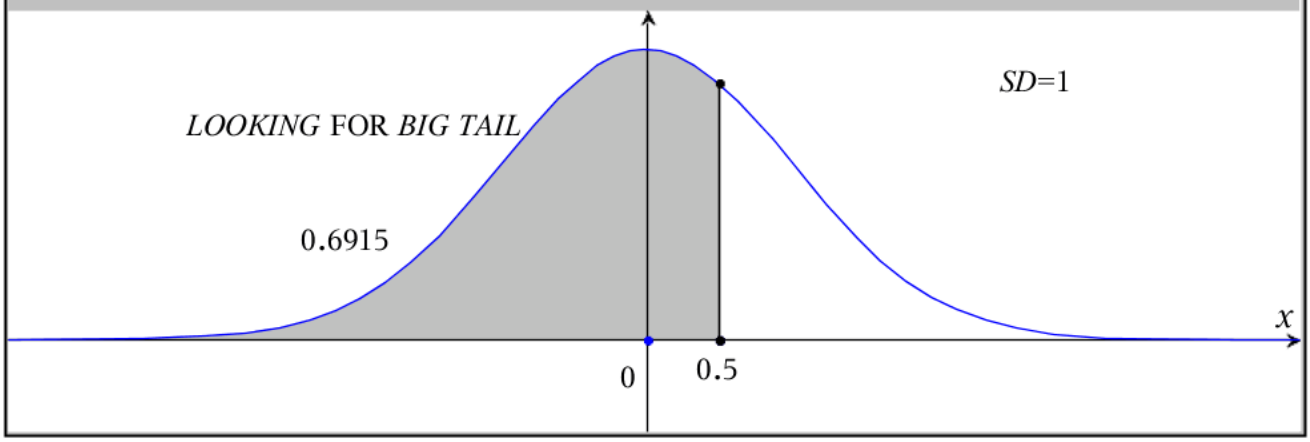
$Z = \frac{x - 170}{90}$

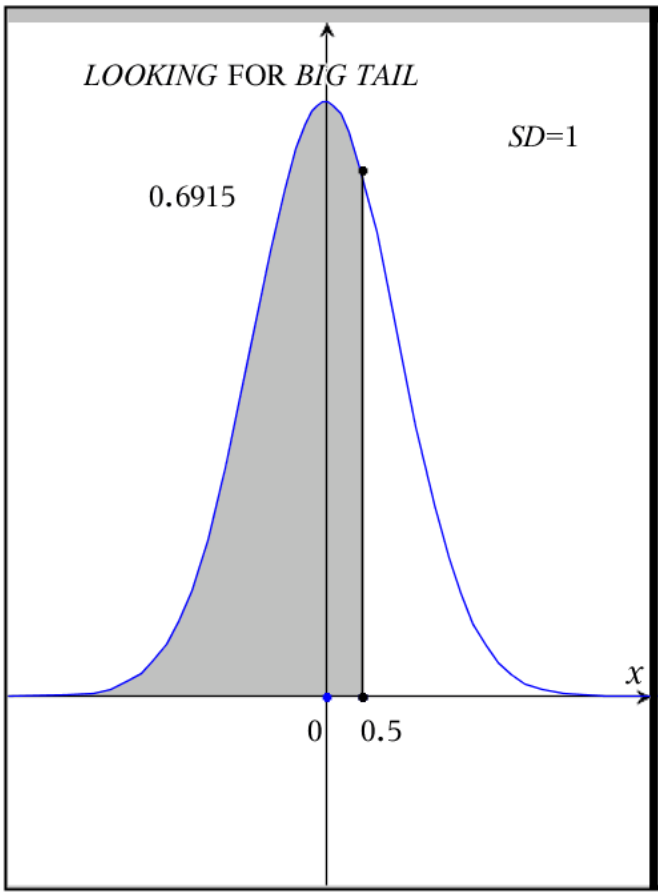
$Z = \frac{215 - 170}{90.} = 0.5$

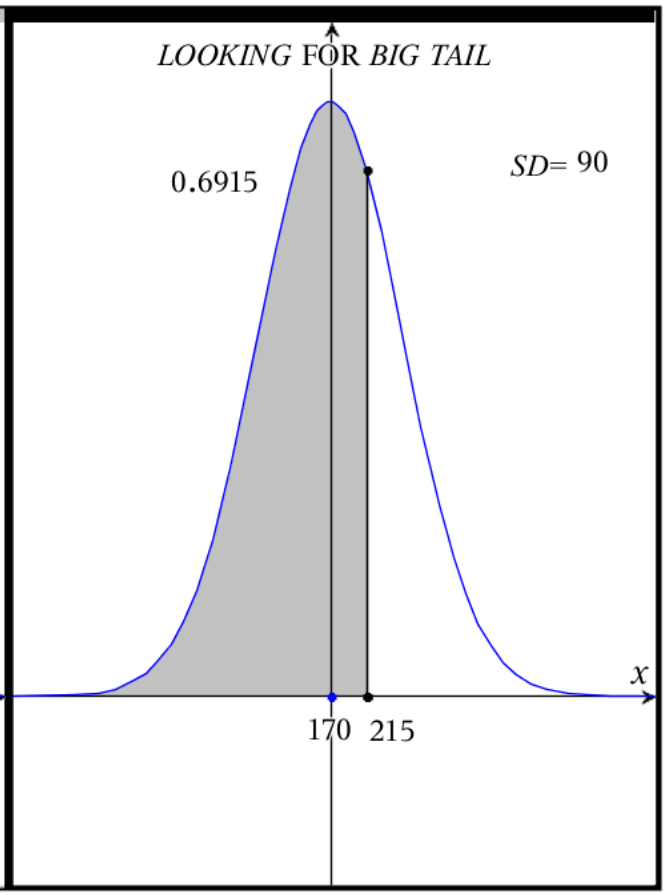
This Z score leads to a BIG TAIL of 0.6915

This Z score leads to a SMALL TAIL of

1 − 0.6915 = 0.3085







Problem 2

mean = 175 SD = 45

$P(x \geq 180) = 0.4562$

This means SHADE RIGHT of x = 180

$P(Z \geq 0.11) = 0.4562$

This means SHADE RIGHT of z = 0.11

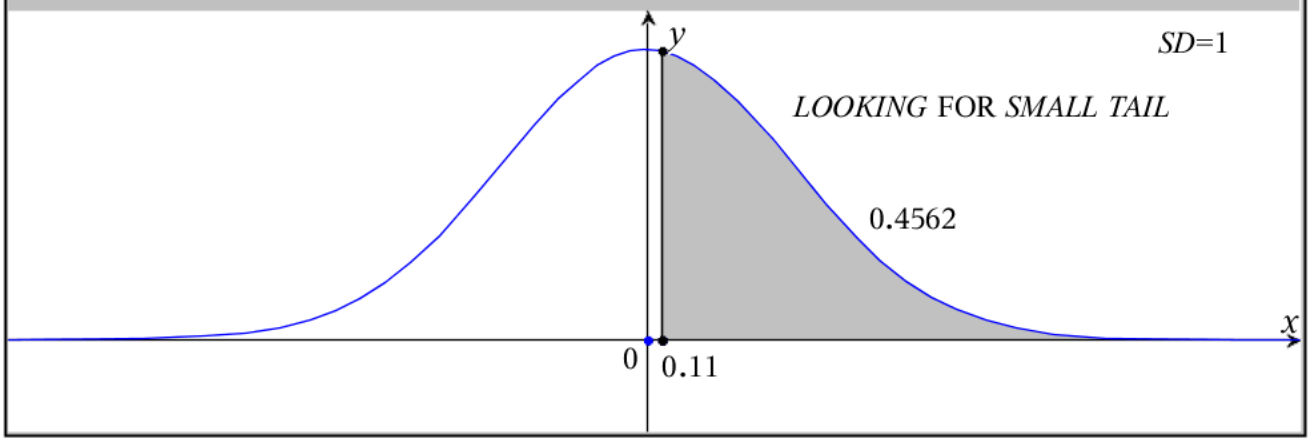
$Z = \frac{x - 175}{45}$

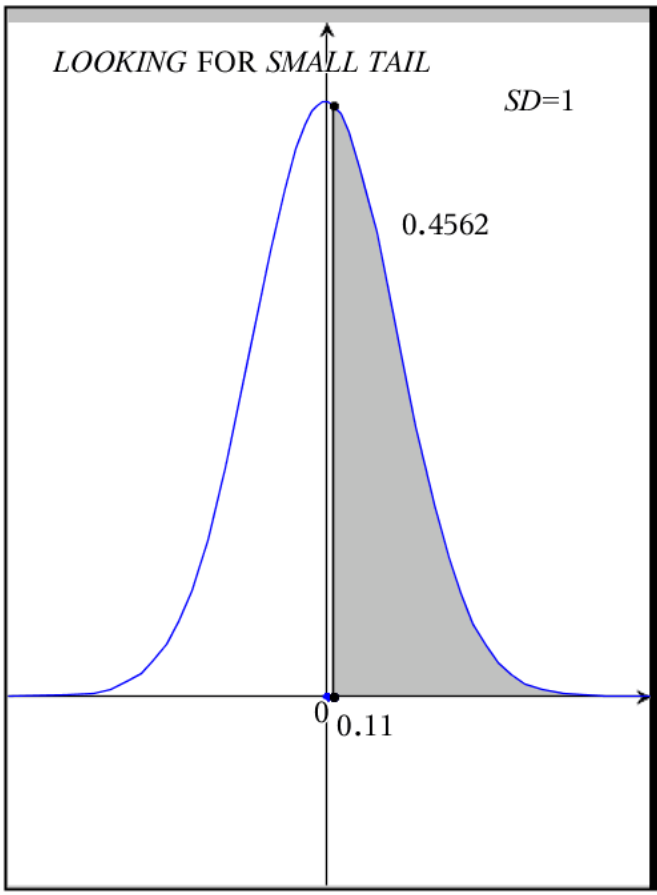
$Z = \frac{180 - 175}{45.} \approx 0.11$

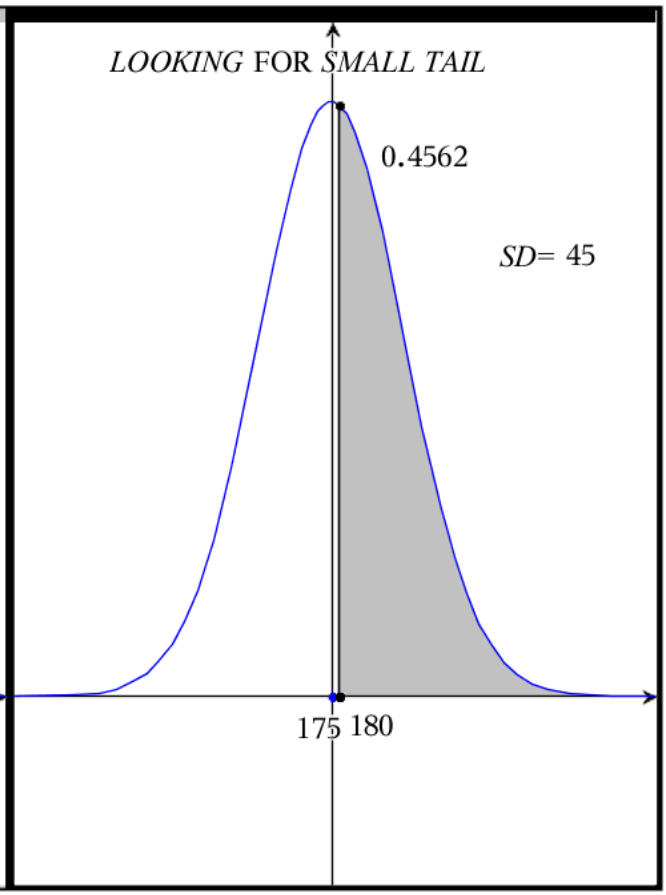
This Z score leads to a BIG TAIL of 0.5438

This Z score leads to a SMALL TAIL of

$1 - 0.5438 = 0.4562$







Problem 3

mean = 210 SD = 36

$P(x \le 190) =$ _____

This means SHADE LEFT of 190

$P(x \le 190) \approx 0.2877$

$P(z \le -0.56) =$ _____

This means SHADE LEFT of -0.56

$P(z \le -0.56) \approx 0.2877$

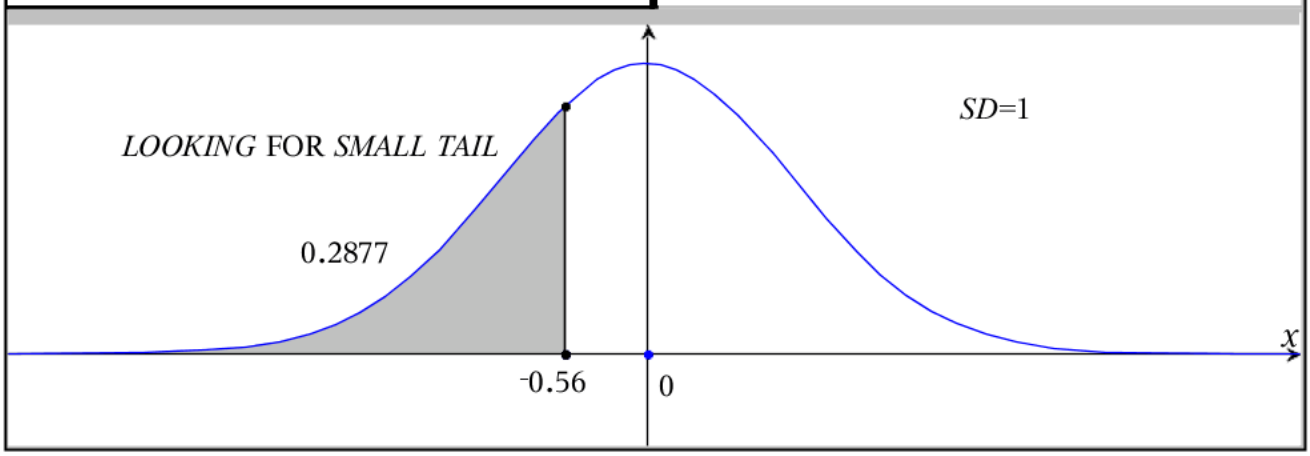
$$Z = \frac{x - 210}{36}$$

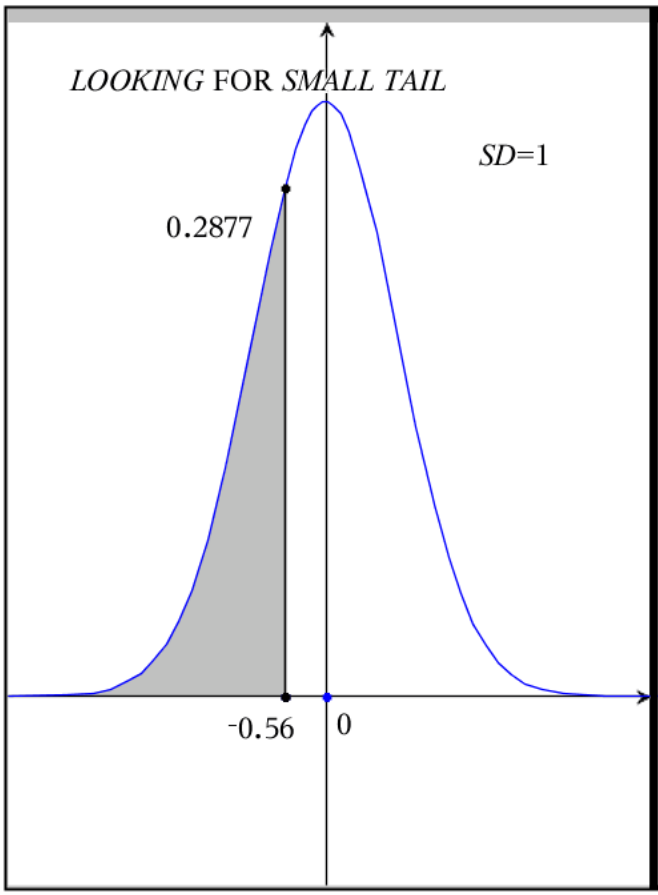
$$Z = \frac{190 - 210}{36.} = -0.56$$

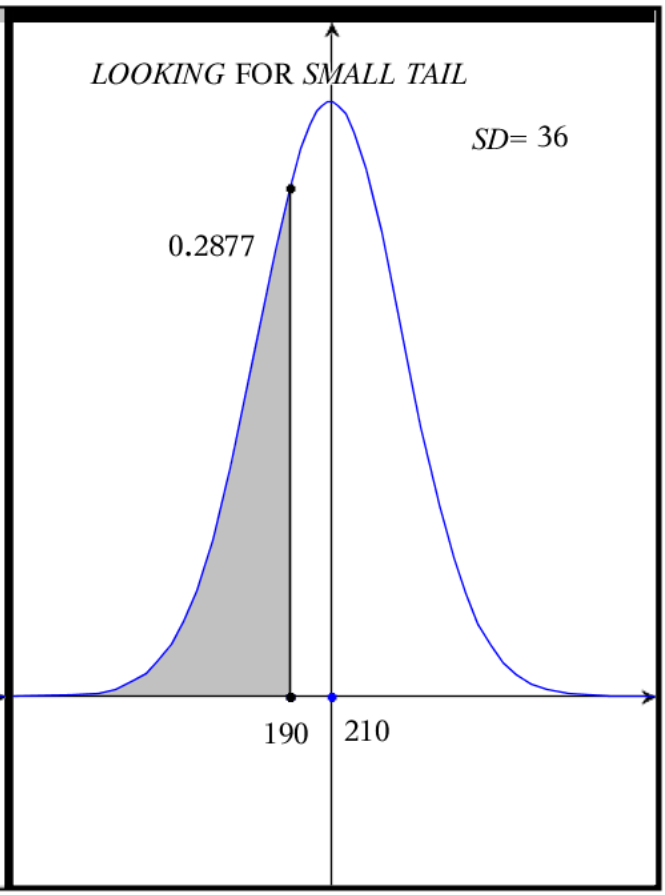
This Z score leads to a BIG TAIL of 0.7123

This Z score leads to a SMALL TAIL of

$1 - 0.7123 = 0.2877$







Problem 4

mean = 190 SD =60

P(x ≤ 175) =_____

This means SHADE LEFT of 175

P(x ≤ 175) ≈0.4013

P(z ≤ -0.25) =_____

This means SHADE LEFT of -0.25

P(z ≤ -0.25) ≈0.4013

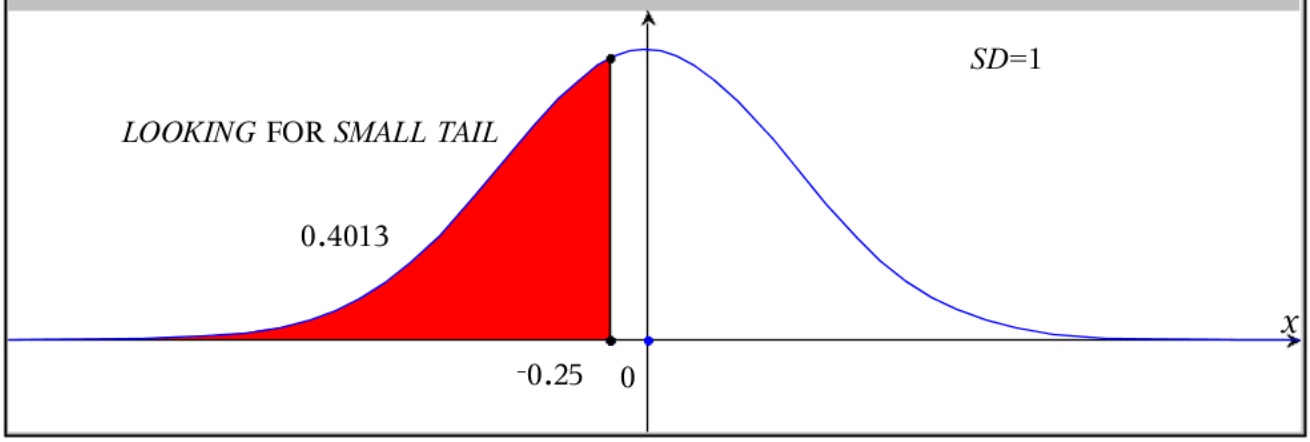
$Z = \frac{x-190}{60}$

$Z = \frac{175-190}{60.} = -0.25$

This Z score leads to a BIG TAIL of 0.5987

This Z score leads to a SMALL TAIL of

1−0.5987 =0.4013



mean = 190 SD =60

P(x ≤ 208) =_____

This means SHADE LEFT of x_given2

P(x ≤ 208) ≈0.6179

P(z ≤ 0.3) =_____

This means SHADE LEFT of 0.3

P(z ≤ 0.3) ≈0.6179

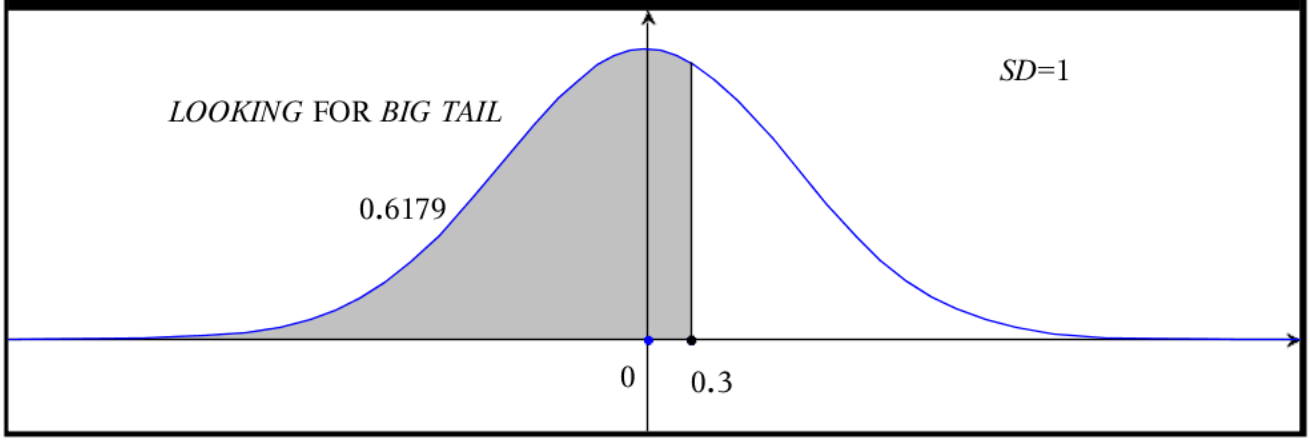
$Z = \frac{x-190}{60}$

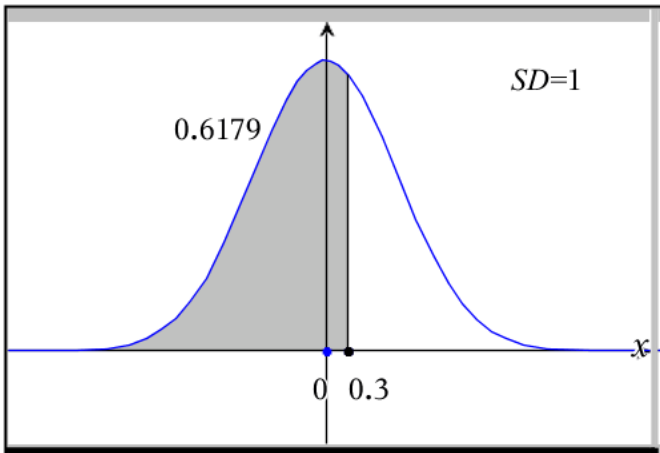
$Z = \frac{208-190}{60.} = 0.3$

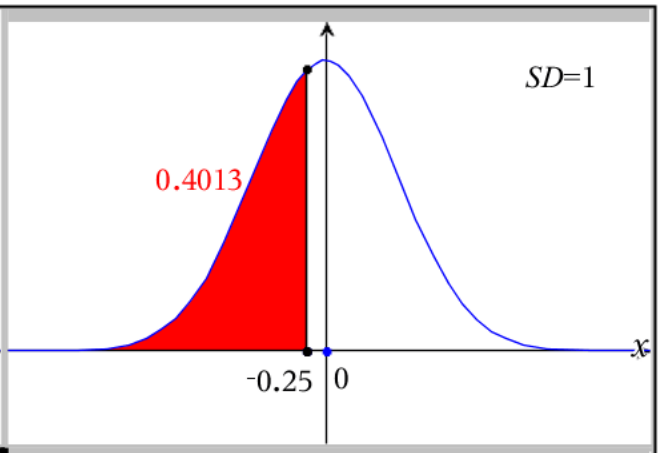
This Z score leads to a BIG TAIL of 0.6179

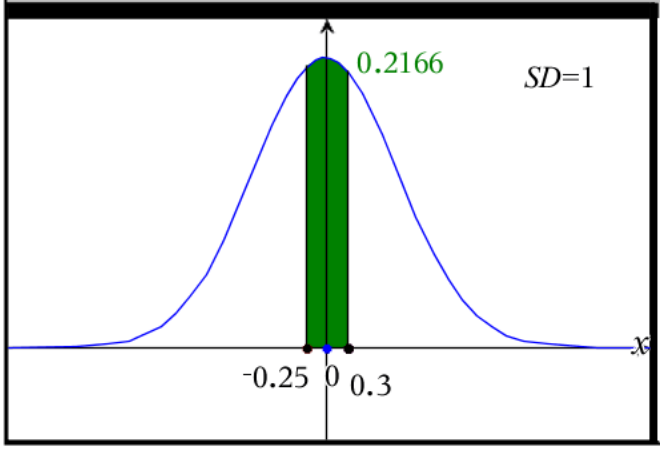
This Z score leads to a SMALL TAIL of

1−0.6179 =0.3821







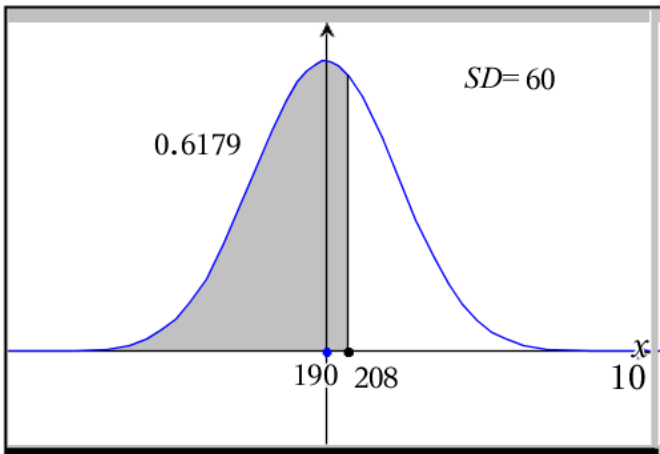


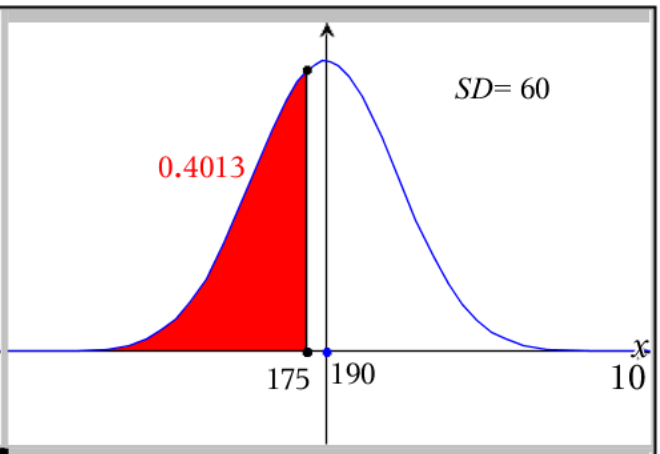
To find the area between -0.25 and 0.3

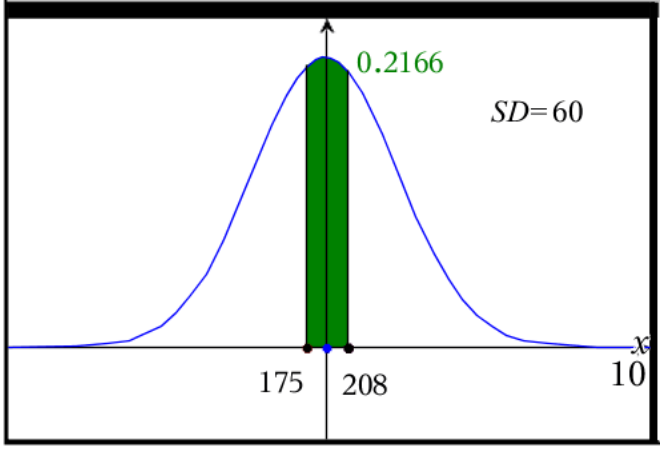
Subtract 0.6179 and 0.4013

0.6179 − 0.4013 = 0.2166

So P(-0.25 ≤ z ≤ 0.3) = 0.2166







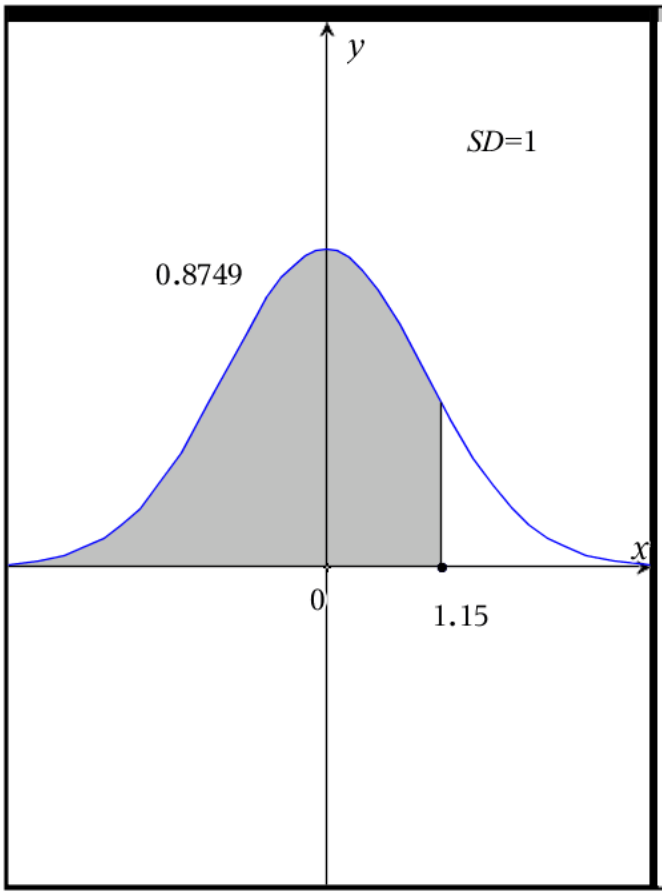
To find the area between 175 and 208

Subtract 0.6179 and 0.4013

0.6179 − 0.4013 = 0.2166

So P(175 ≤ x ≤ 208) = 0.2166

Problem 5



mean =400 SD =80

P(x≤ T)=0.8746

look up 0.8746 in the Z Chart

(THIS MEANS IN THE MIDDLE)

The closest area is 0.8749 ,

which gives us our z score **z_t** = 1.15

$1.15 = \frac{t-400}{80}$

$1.15\ (80) = t-400$

$92. = t-400$

$92. + 400 = T$

T=492.