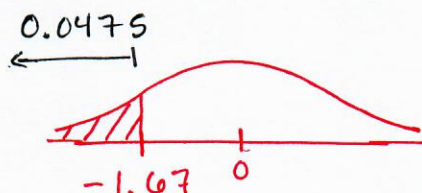


MATH 1610/MATH 1552

6.2 EXTRA PRACTICE: Finding Probabilities Under the Curve

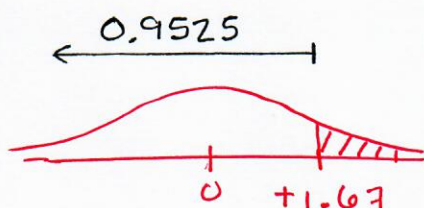
Draw a normal standard distribution curve for each scenario, and determine the probability.

1. $P(z < -1.67)$



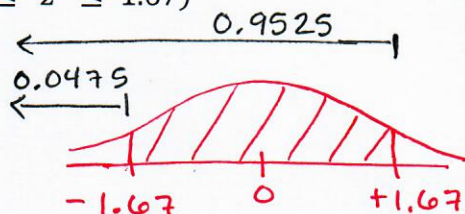
$$P(z < -1.67) = 0.0475$$

2. $P(z \geq 1.67)$



$$\begin{aligned} P(z \geq 1.67) &= 1 - P(z < 1.67) \\ &= 1 - 0.9525 \\ &= 0.0475 \end{aligned}$$

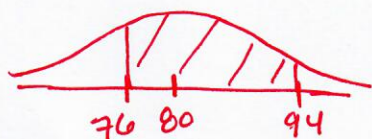
3. $P(-1.67 \leq z \leq 1.67)$



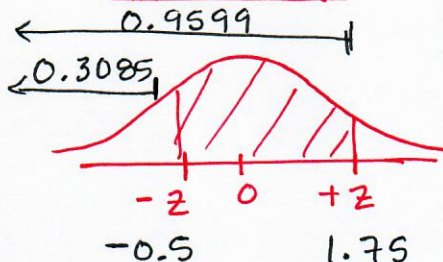
$$\begin{aligned} P(-1.67 < z \leq 1.67) &= 0.9525 - 0.0475 \\ &= 0.9050 \end{aligned}$$

4. The mean score on an exam was 80 with a standard deviation of 8. One student scored a 76, and another student scored a 94. What percent of students scored between the two students?

original



standardizing



$$\begin{aligned} z &= \frac{76-80}{8} & z &= \frac{94-80}{8} \\ z &= -0.5 & z &= 1.75 \end{aligned}$$

$$\begin{aligned} P(76 \leq X \leq 94) &= P(-0.5 \leq z \leq 1.75) \\ &= P(z < 1.75) - P(z < -0.5) \\ &= 0.9599 - 0.3085 \\ &= 0.6514 \end{aligned}$$

About 65.14% of the students scored between 76 & 94.