Julie has a problem. When we calculated the probability of her date being taller than her, we failed to take her high heels into account. See if you can find the probability of Julie's date being taller than her while she's wearing shoes with 5 inch heels.

As a reminder, Julie is 64 inches tall and X ~ N(71, 20.25) where X is the height of men in Statsville.

When Julie is wearing 5 inch high heels, her height is 69 inches. We need to find P(X > 69).

We need to start by finding the standard score of 178 so that we can use probability tables to look up the probabilities.

$$Z = \frac{X - \mu}{\sigma}$$

$$= \frac{69 - 71}{4.5}$$

← The variance is 20.25, so the standard deviation is the square root, 4.5.

$$= \frac{-2}{4.5}$$

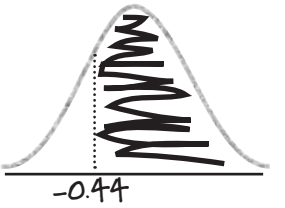
$$= -0.44 \text{ (to 2 decimal places)}$$

Now we've found z, we need to find P(Z > z) i.e. P(Z > −0.44)

$$P(Z > -0.44) = 1 - P(Z < -0.44)$$

$$= 1 - 0.3300$$

$$= 0.67$$



So the probability that Julie's date is taler than her when she's wearing shoes with a 5 inch heel is 0.67.