

1. Suppose the shoe size of men in South Bend is normally distributed with mean 10 and standard deviation of 2. What percentage of the population has a shoe size larger than 13?
  
  
  
  
  
  
  
  
  
  
2. If 15 customers purchase shoes from a particular South Bend shoe store today what is the probability that exactly 5 of them have a shoe size larger than 13?
  
  
  
  
  
  
  
  
  
  
3. Kyle and Gordon have a contest to determine who has the lost the most weight over the course of a week. Using their own scales they each weigh themselves at the start and end of the week to determine how much weight they've lost and then compare these values to determine a winner. Suppose the error (measured weight – true weight) of Kyle's scale is  $\sim \mathcal{N}(2\text{lbs}, 3\text{lbs})$  and that of Gordon's is  $\sim \mathcal{N}(-3\text{lbs}, 4\text{lbs})$  and the scales declare Gordon is the winner by 2.5 lbs. What is the probability Gordon actually won?

