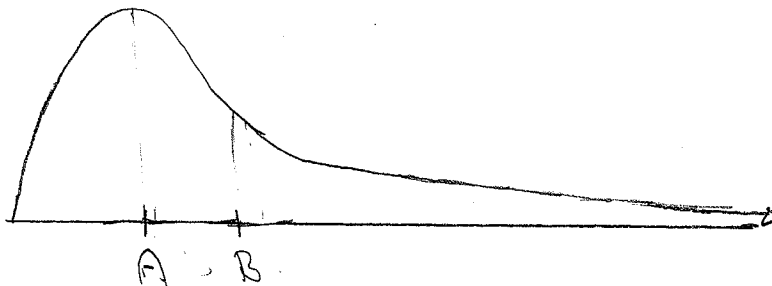


# Quiz 2

Key

You are welcome to use a calculator for this quiz but realize the incorrect answer with no supporting work will receive no partial credit.



1. Use the above density curve to answer the following questions.

(a) [1] What is the total area bounded by the horizontal axis and the curve?

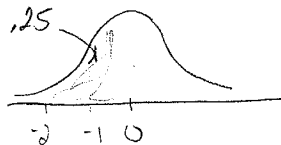
1 unit squared  
by definition of a density curve (defined on pg 66)

(b) [1] Which letter above best approximates the mean?

B  
The data is skewed to the right & will draw B towards the right.  
another justification is pictured on pg 68 of the test

2. Use Table A to find the value  $z$  of a standard Normal variable that satisfies each of the following. pg 83 #3.13

(a) [1] The point  $z$  with 25% of the observations falling below it.

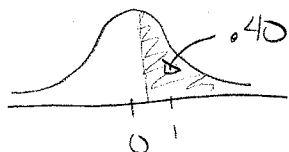


$-0.67$  is closest

I'd accept  $-0.68$  as well

(b) [2] The point  $z$  with 40% of the observations falling above it.

draw density curve + .5 shaded correct region +1



(+1) .25 is closest

I'd accept .26

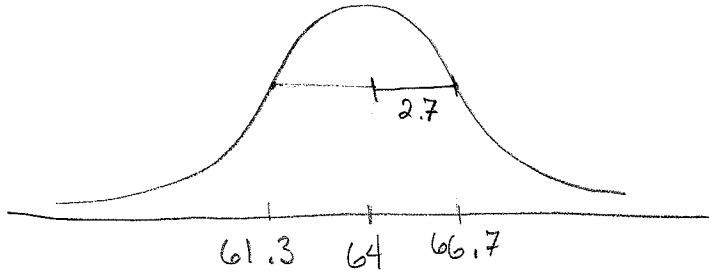
~~.4006~~  
~~-.5987~~  
+.0013  
vs  
.0026

looking for entry in Table A closest to  $.6 = 1 - .4$

The entry .5987 is closest with a corresponding z-score of .25.

3. The distribution of heights of women ages 20 to 29 is approximately Normal with mean 64 inches and standard deviation 2.7 inches.

(a) [1] Draw a Normal curve on which this mean and standard deviation are correctly located. pg 74 #3.5



(b) [1] What is the z-score for a woman 6 feet tall? pg 76 #3.9

$$\frac{12}{6} = 72$$

6 feet corresponds to 72 inches

$$z\text{-score} = \frac{72 - 64}{2.7} = 2.96$$

(c) [1] What proportion of observations on the above density curve take values less than 6'?

Table A

z-score of 2.96 corresponds to .9985

99.85%

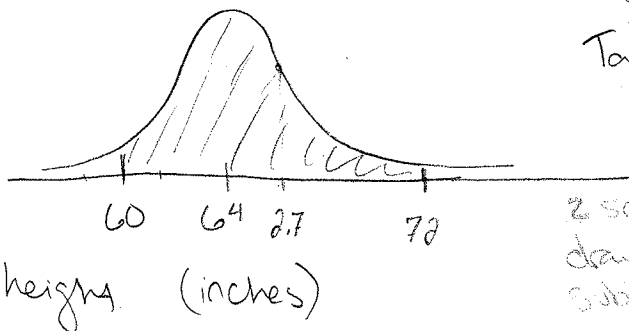
Calc

$$\text{normalcdf}(-1000, 2.96) = .9985$$

$$\text{normalcdf}(-1000, 72, 64, 2.7) = .9985$$

99.85%

(d) [2] What proportion of observations on the above density curve take values between 5' and 6'?



looking for the shaded area.

Table A

$$\text{shaded area} = \left( \begin{array}{l} \text{area below 72} \\ \text{on density curve} \\ \text{in part a} \end{array} \right) - \left( \begin{array}{l} \text{area below 60} \\ \text{on density} \\ \text{curve in part a} \end{array} \right)$$

$$z\text{ score } +.5 \text{ draw } +.5 \text{ subtract } -.5 = \left( \begin{array}{l} \text{area below 2.96} \\ \text{on standard} \\ \text{normal curve} \end{array} \right) - \left( \begin{array}{l} \text{area below} \\ \frac{60-64}{2.7} \text{ on standard} \\ \text{normal curve} \end{array} \right)$$

$$= .9985 - .0694$$

$$= .9291$$

$$2 \text{ Calc } \text{normalcdf}(-1.48, 2.96) = .9290$$

$$\text{normalcdf}(60, 72, 64, 2.7) = .9292$$

$$\frac{60-64}{2.7} = -1.48$$

so 92.9%