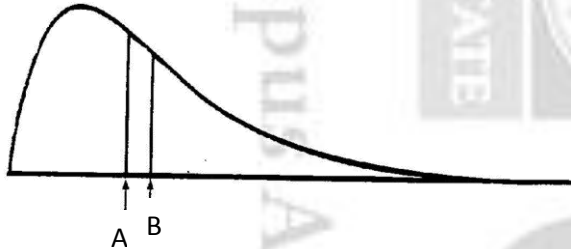


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Density Curves and Normal Distribution Worksheet

Density Curves and Normal Distribution Worksheet

1.



For the density curve pictured above, identify:

- Which way is the density curve above skewed?
- Identify the mean and median of the density curve above.
- The mean splits the area under the density curve. Is this an even split, or uneven?
- Circle the data set that might have been used to make the above density curve?

Student Height	Number of Students
5'6"	47
5'8"	62
5'10"	36
6'0"	14
6'2"	6
6'4"	4
6'6"	2

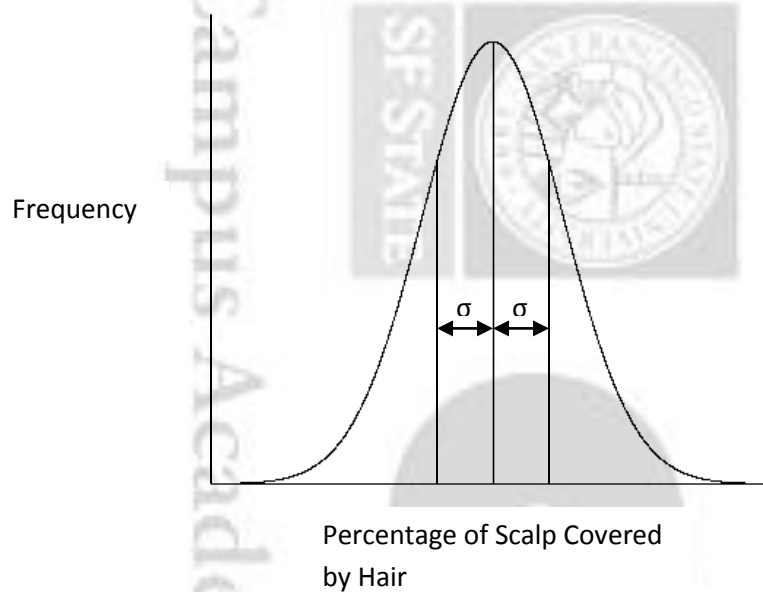
Student Height	Number of Students
5'6"	5
5'8"	12
5'10"	36
6'0"	55
6'2"	41
6'4"	19
6'6"	2

¹ Figure sourced from York University's Economics Department website: <http://dept.econ.yorku.ca/~jbsmith/ec2500_1998/lecture9/Image90.gif>

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2.



The normal curve above describes the percentage of scalp coverage of men of age 50. The mean value of the data is 32% scalp coverage and the standard deviation is 10%.

- In which range of values, centered at the mean, do 68% of the data fall? 95% of the data?
- 7% of a 50-year-old professor's scalp is covered by hair. What is the z-score of this professor's scalp coverage?
- How many standard deviations away from the mean is this professor's scalp coverage?
- A 50-year-old female colleague of the above professor has 60% of her scalp covered by hair. 50 year-old female scalp coverage is described by the normal distribution $N(80,10)$. What is the z-score of the female professor's scalp coverage?

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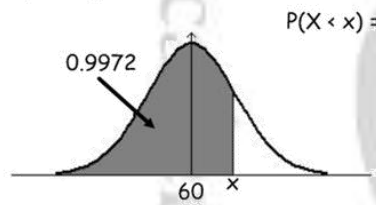
Density Curves and Normal Distribution Worksheet

- e. The female professor has a fuller head of hair than what proportion of 50-year-old women?
- f. How about the male professor? Which of the two have more hair than a greater proportion of their respective populations?

3.

Find the value of x in each of the following diagrams:

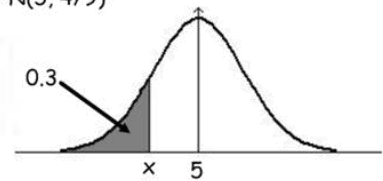
(a) $X \sim N(60, 25)$



$$P(X < x) = 0.9972$$

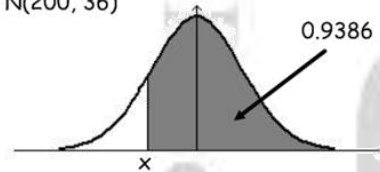
$x =$

(b) $X \sim N(5, 4/9)$



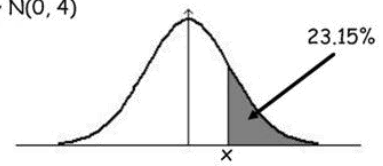
$x =$

(c) $X \sim N(200, 36)$



$x =$

(d) $X \sim N(0, 4)$



$x =$

² Figured sourced from the Math's Teaching website: < <http://mathsteaching.files.wordpress.com/2008/02/normal-tables-in-reverse.jpg> >