Name:_____

AP Statistics Assignment 2.2 Extra Pratice: NormalCDF and Normal Distributions:

1. What is the difference between NormalCDF and InvNorm? What are they each used for?

2. For each of the following scenarios, assuming normality, is it more suitable to use NormalCDF or InvNorm? Explain

   a) the average score of students in an university course is 65% with a standard deviation of 6%. What percentage of the class got between 60% to 70%?

   b) If John is in the course mentioned above and scored in the top 2%, what score did he get?

   c) The lifetime is a candescent light bulb is 8 years and 6 months with standard deviation of 55 days. How long will the top 1% of light bulbs last?

   d) a coffee dispenser dispense coffee into a cup. The amount of coffee dispensed is 250ml with a standard deviation of 10ml. If the cup has a volume of 275ml, what percentage of dispenses will overflow?

   e) the average lifespan of a mobile phone is 3.5 years with a standard deviation of 0.8 years. How long does the top 10% of longest lasting phones last?

3. Assuming normality, Jason was told that he is within the top 5% of kids his age. He's currently 45" tall and most kids his age have an average height of 40". What is the standard deviation in the distribution of kids his age?

4. At a meat packaging company, ground beef is placed in 10 lbs packages. With variation, the distribution of weights for individual packages have mean of 9.9lbs. A package of 10.2 lbs falls into the 99" percentile. What is the standard deviation of the distribution of meat package weights?

5. From the prior question, assuming the distribution of meat package weight is NOT normally distributed, what is the least percentage of packages having weight between 9.57 lbs and 10.23 lbs?

6. The heights of high school volleyball players are approximately normally distributed with $\mu = 5'10"$ and $\sigma = 1.8"$. For each of the following, illustrate with a picture and evaluate.

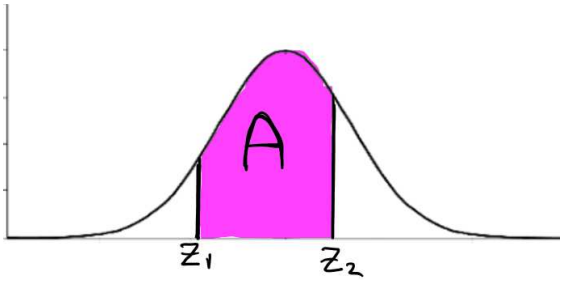
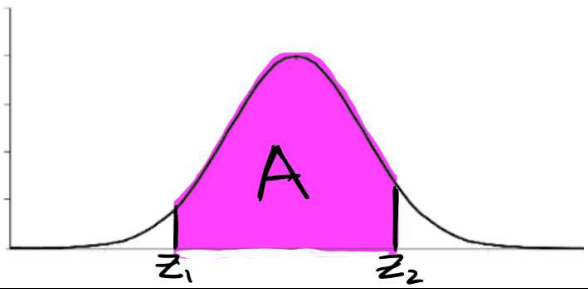
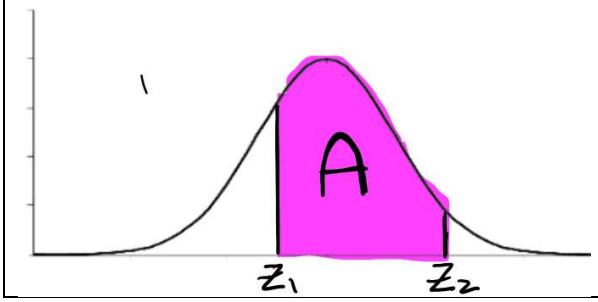
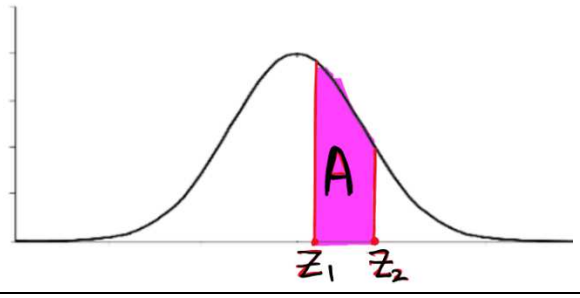
(a) P (Weight > 200)

b) P (173 ≤ Weight ≤ 181)

(c) P (Weight < 190)

(d) The value of X if P (Weight > X) = 0.306.

7. Given each diagram, along with the Area and Z-scores, find the missing value:

$Area = 0.4122,\ Z_1 = -0.65,\ Z_2 = ?$ 	$Area = 0.8428,\ Z_1 = ?,\ Z_2 = 1.85$ 
$Area = ?,\ Z_1 = -0.43,\ Z_2 = 2.85$ 	$Area = 0.339,\ Z_1 = ?,\ Z_2 = Z_1 + 1.21$ 

Assume the given distributions are normal. An electronic product takes an average of 3.4 hours to move through an assembly line. If the standard deviation is 0.5 hour, what is the probability that an item will take between 3 and 4 hours?www.crackap.com

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