Dr. ZABDAWI

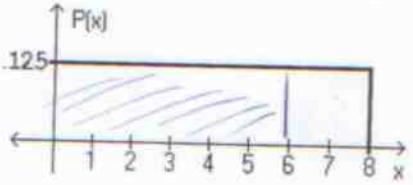
QUIZ 6/Math 2101

3/23/11

Name Solution Key

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Using the following uniform density curve, answer the question.



1) What is the probability that the random variable has a value less than 6?

1) A

A) 0.750 B) 0.500 C) 0.875 D) 0.625

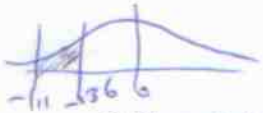
$P(x<6) = P(x\leq 6) = 6 \times .125 = 6 \cdot \frac{1}{8} = \frac{3}{4} = 0.75$

If Z is a standard normal variable, find the probability.

2) The probability that Z lies between −1.10 and −0.36

2) B

A) 0.2239 B) 0.2237 C) 0.4951 D) −0.2237



$P(-1.1 \leq Z \leq -.36) = \text{normalcdf}(-1.1, -.36) = .2238$

$= .2239$

3) The probability that Z is less than 1.13

3) A

A) 0.8708 B) 0.8907 C) 0.1292 D) 0.8485

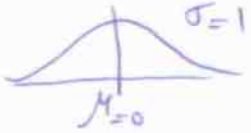
$P(Z \leq 1.13) = \text{normalcdf}(-1E99, 1.13) = .8708$

The Precision Scientific Instrument Company manufactures thermometers that are supposed to give readings of 0°C at the freezing point of water. Tests on a large sample of these thermometers reveal that at the freezing point of water, some give readings below 0°C (denoted by negative numbers) and some give readings above 0°C (denoted by positive numbers). Assume that the mean reading is 0°C and the standard deviation of the readings is 1.00°C. Also assume that the frequency distribution of errors closely resembles the normal distribution. A thermometer is randomly selected and tested. Find the temperature reading corresponding to the given information.

4) Find P_{96}, the 96th percentile.

4) D

A) 1.03° B) −1.38° C) 1.82° D) 1.75°



Cutoff for the 96th Percentile = $\text{InvNorm}(.96, 0, 1)$

$= 1.75°C$