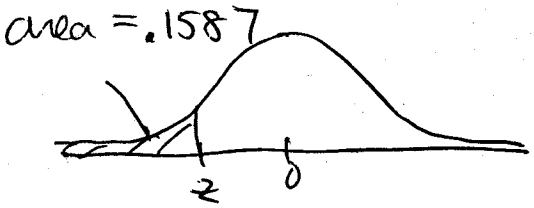
MATH 110 – QUIZ 14 – 11 DECEMBER 2009

Answer all of the following questions in the space provided.
For this quiz use the following table for the standard normal distribution.

z	$A(z) = Pr(Z \leq z)$
−2.0	.0228
−1.5	.0668
−1.0	.1587
−0.5	.3085
0	.5
.5	.6915
1.0	.8413
1.5	.9332
2.0	.9772

1. (3 pts. each) Assume that the random variable Z has the standard normal distribution

(a) Find z so that $Pr(Z \leq z) = .1587$



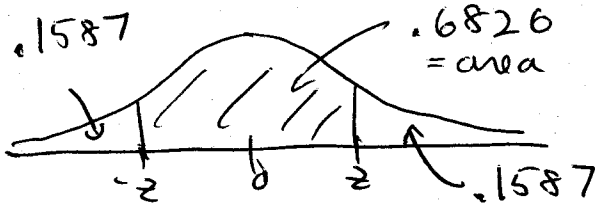
$z = -1$ //

(b) Find z so that $Pr(-z \leq Z \leq z) = .6826$

$1 - .6826 = .3174$

$\frac{.3174}{2} = .1587$

$\therefore z = +1$ //



2. (2 pts. each) Suppose that IQ scores are normally distributed with $\mu = 100$ and $\sigma = 10$.

(a) What percentage of the population has an IQ score of 120 or more?

$Pr(Y \geq 120) = Pr(Z \geq \frac{120-100}{10}) = Pr(Z \geq 2)$

$= 1 - .9772 = .0228$ //

(b) What percentage of the population has an IQ score of 90 or less?

$Pr(Y \leq 90) = Pr(Z \leq \frac{90-100}{10})$

$= Pr(Z \leq -1) = .1587$ //