

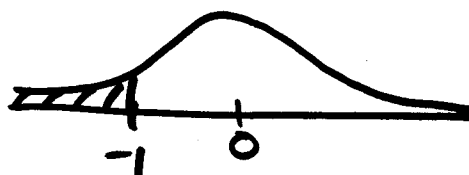
Answer all of the following questions in the space provided.  
For this quiz use the following table for the standard normal distribution.

$z$	$A(z) = Pr(Z \leq z)$
-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. (2 pts. each) Assume that the random variable  $Z$  has the standard normal distribution

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

$$z = -1$$



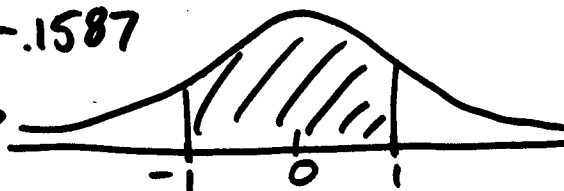
(b) Find  $z$  so that  $Pr(Z \geq z) = .1587$

$$z = 1$$



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

$$Pr(-1 \leq Z \leq 1) = .8413 - .1587 = .6826$$



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?

$$120 = 100 + 20 = \mu + 2\sigma$$

$$\boxed{2.28\%}$$

$$\therefore Pr(X \geq 120) = Pr(Z \geq 2) = 1 - Pr(Z \leq 2) = .0228$$

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

$$90 = 100 - 10 = \mu - \sigma$$

$$Pr(X \leq 90) = Pr(Z \leq -1) = .1587$$

$$\therefore \boxed{15.87\%}$$