6.2. Find the area under the normal curve between the given values of the standardized normal variable $z$.
(a) $z=-1.4$ and $z=1.4$  
area = . _ _ 12
(b) $z=-2$ and $z=2$  
area = . _ _ 14

6.4. Find the probabilities.
(a) $P(z < 2.33)$  
= . _ _ 18
(c) $P(z > 1.96)$  
= . _ _ 7

DEFINITION. $z_\alpha = \text{the number such that } P(z > z_\alpha) = \alpha$. Thus the probability of exceeding $z_\alpha$ is $\alpha$.

6.6'. Find $z_{.9750}$ and $z_{.3594}$.
(a) $P(z > z_{.9750}) = .9750$  
$z_{.9750} = _ _ \cdot _ _$ 16
(b) $P(z > z_{.3594}) = .3594$  
$z_{.3594} = _ _ _$ 9

6.9'. Find the following percentiles for the standardized normal random variable $z$.
(a) 80th  
$z = _ _ _$ 12
(b) 85th  
$z = _ _ _$ 5

6.10ab A normal random variable $x$ has mean $\mu = 10$ and std. dev. $\sigma = 2$. Find the probabilities of these $x$-values:
(a) $x > 13.5$  
= . _ _ 4
(b) $x > 11.8$  
= . _ _ 10

6.14'(2) A normal random variable $x$ has mean 50 and std. dev. 10. Find a value of $x$ that has area .01 to its right.
= _ _ . _ 13

6.15(4). Suppose $x$ is a normal random variable such that $P(x > 4) = .9772$ and $P(x > 5) = .9332$. Find the mean and std. dev. Warning, if $x$ is below the mean, the $z$-score is negative.

Give the two simultaneous linear equations for $\mu$ and $\sigma$:

You should get -- $\mu = 8$  $\sigma = 2$