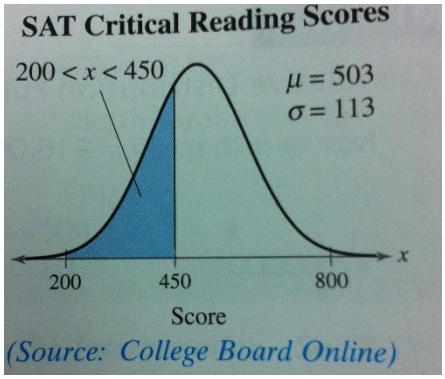
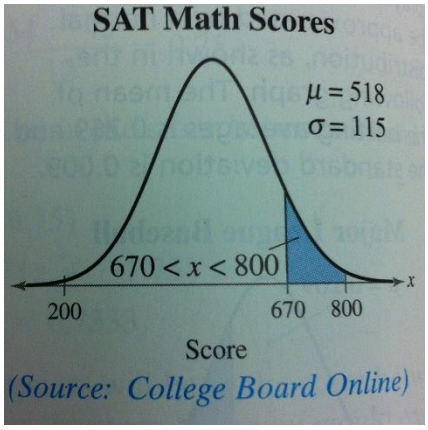
Prob/StatDiscrete **Name**_____
Worksheet 6.2

Computing Probabilities *in exercises 1-4, assume the random variable x is normally distributed with mean* $\mu = 86$ *and standard deviation* $\sigma = 5$. *Find the indicated probability.*

1. P(x < 80)
2. P(x < 100)
3. P(x >92)
4. P(85 < x < 95)

Graphical Analysis *in Exercises 5 and 6, assume a member is selected at random from the population represented by the graph. Find the probability that the member selected at random is from the shaded area of the graph. Assume the variable x is normally distributed.*

5. 

6. 

Finding Probabilities *in Exercises 7-9, find the indicated probabilities. If convenient, use technology to find the probabilities.*

7. **Fish Lengths** The lengths of Atlantic croaker fish is normally distributed, with a mean of 10 inches and a standard deviation of 2 inches. An Atlantic croaker fish is randomly selected.
    a) Find the probability that the length of the fish is less than 7 inches.
    b) Find the probability that the length of the fish is between 7 and 15 inches.
    c) Find the probability that the length of the fish is more than 15 inches.
8. **ACT Scores** In a recent year, the ACT scores for high school students with a 3.50 and 4.00 grade point average were normally distributed with a mean of 24.2 and a standard deviation of 4.3. A student with a 3.50 to 4.00 grade point average who took the ACT during this time is randomly selected.
    a) Find the probability that the student's ACT score is less than 17.
    b) Find the probability that the student's ACT score is between 20 and 29.
    c) Find the probability that the student's ACT score is more than 32.

9. **Beagles** The weights of adult male beagles are normally distributed, with a mean of 25 pounds and a standard deviation of 3 pounds. A beagle is randomly selected.
    a) Find the probability that the beagle's weight is less than 23 pounds.
    b) Find the probability that the weight is between 23 and 25 pounds.
    c) Find the probability that the beagle's weight is more than 27 pounds.

Using Normal Distributions *in Exercises 10 and 11, answer the questions about the specified normal distribution.*

10. **SAT Critical Reading Scores** Use the normal distribution of SAT critical reading scores in Exercise 5 for which the mean is 503 and the standard deviation is 113.
    a) What percent of the SAT verbal scores are less than 600?
    b) Of 1000 SAT verbal scores are randomly selected, about how many would you expect to be greater than 550?
11. **SAT Math Scores** Use the normal distribution of SAT math scores in Exercise 6 for which the mean is 518 and the standard deviation is 115.
    a) What percent of the SAT math scores are less than 500?
    b) IF 1500 SAT math scores are randomly selected, about how many would you expect to be greater than 600?