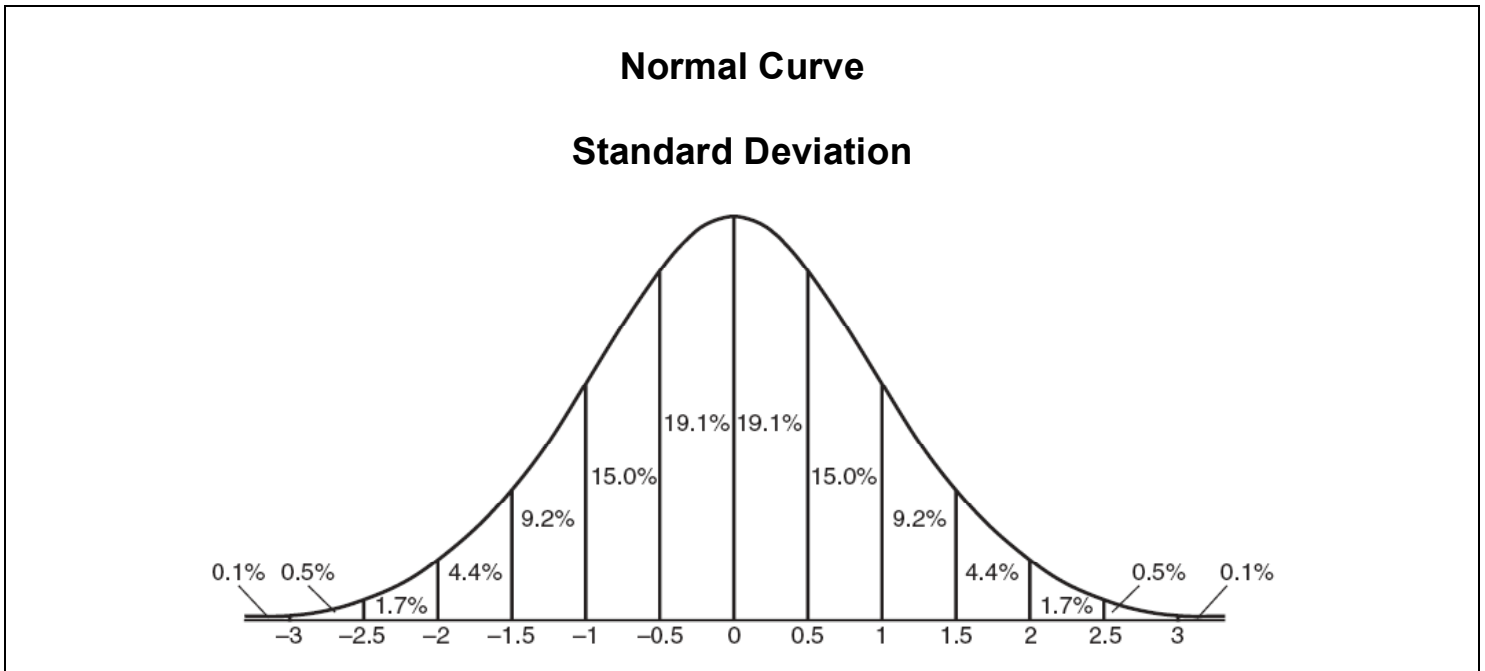


## M\$6 Exam 5 Review Sheet

Exam 5 will be given on **Tuesday, June 10, 2008** and will focus on the following topics: binomial probability involving “at least” or “at most,” the binomial theorem, finding a specific term in a binomial expansion, summation notation, mean, median, mode, standard deviation (population and sample), the normal curve, percentile, linear and exponential regression, and the correlation coefficient. The normal curve shown below will be provided for your reference on this exam.

*Graphing calculators are required on this exam.*



1. Find the value of each summation:    a)  $\sum_{n=1}^4 (2n - 3)^2$             b)  $\sum_{k=0}^3 \left( \sin \frac{k\pi}{2} \right)$
  
2. In a baseball game, the probability that Peter gets on base safely is  $\frac{3}{7}$ . If he comes to bat four times, what the probability that he will get on base safely *at most* twice?
  
3. The accompanying diagram shows a square piece of paper with a smaller square drawn in the center. If 6 darts randomly hit the paper, what is the probability that *at least* 4 darts will hit the smaller square?
  
4. From 1984 to 1995, the winning scores for a golf tournament were 276, 279, 279, 277, 278, 278, 280, 282, 285, 272, 279, and 278. Using the standard deviation for the sample,  $S_x$ , find the percent of these winning scores that fall within one standard deviation of the mean.

5. The average score for a Latin test is 77 and the standard deviation is 8. Which percent best represents the probability that any one student scored between 61 and 93 on the test?  
 (1) 95%                      (2) 99.5%                      (3) 68%                      (4) 34%
6. A company has 500 employees. 200 of these employees earn \$10 per hour, 150 earn \$12 per hour, and 150 earn \$20 per hour. Which of the following is greater than \$12?  
 (1) The mean salary per hour                      (3) The mode salary per hour  
 (2) The median salary per hour                      (4) None of the above
7. On a standardized test, the distribution of scores is normal, the mean of the scores is 75, and the standard deviation is 5.8. If a student scored 83, the student's score ranks  
 (1) below the 75th percentile  
 (2) between the 75th percentile and the 84th percentile  
 (3) between the 84th percentile and the 97th percentile  
 (4) above the 97th percentile
8. The table below shows the heights in inches of ten girls on a basketball team.

Height	Frequency
62	2
66	1
68	2
72	3
74	2

Find the mean and the standard deviation of these heights to the *nearest thousandth*. How many of the individual girls' heights fall within one standard deviation of the mean?

9. a) Find the third term in the expansion of  $(a - \sqrt{2})^5$   
 b) Find the middle term in the expansion of  $(3x - y)^6$ .
10. The accompanying diagram shows the average salary of baseball players since 1984. Using the data in the table, state the exponential regression equation with the coefficient and base rounded to the *nearest hundredth*. Using your written regression equation, estimate the salary of a baseball player in the year 2008, to the *nearest thousand dollars*.

Number of Years Since 1984	Average Salary (thousands of dollars)
0	290
1	320
2	400
3	495
4	600
5	700
6	820
7	1,000
8	1,250
9	1,580

11. The correlation coefficient of water pollution to marine wildlife population is  $-0.64$ . What does this indicate?  
 (1) Marine wildlife population is weakly affected by water pollution  
 (2) Marine wildlife population is strongly affected by water pollution  
 (3) Marine wildlife population is unaffected by water pollution.  
 (4) There was a mistake made in calculating the correlation coefficient.