

University of South Carolina  
 Math 170: Finite Mathematics  
 Section 006  
 Spring 2012

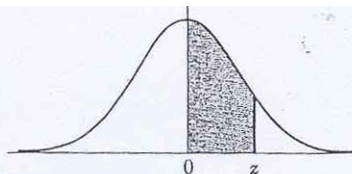
Test 3

Please write *only* your name on the test sheet.

Place all work and answers on the blank sheets provided.

1. Roll two four-sided dice (the faces are labeled 1, 2, 3, and 4) and let  $X$  be the sum of the two faces. What is the probability distribution for  $X$  (i.e. the table of outcomes for  $X$  with their corresponding probabilities)?
2. You borrow \$10,000 at 9% interest and arrange to make monthly payments (so the interest is compounded monthly). What should your monthly payment be if you must pay off the entire loan (including interest) in exactly four years?
3. You are playing a game where you draw a single card at random from a standard fifty-two-card poker deck. You win or lose money based on the card you draw. Twenty-six of the cards result in a win of \$1. Twenty-two of the cards result in a win of \$2. Four of the cards result in a loss of \$100. (There is no overlap in the sets of cards just described.) What is the expected value of this game?
4. You download a file to your computer three separate times. Each time, there is a 1% chance the file becomes corrupted during transmission. What is the probability at least two of the three downloads are corrupted?
5. Stanford-Binet IQ scores are normally distributed with a mean of 100 and a standard deviation of 16. What percentage of the population has an IQ score between 104 and 112?

AREAS  
 under the  
 STANDARD  
 NORMAL CURVE  
 from 0 to  $z$



$z$	0	1	2	3	4	5	6	7	8	9
0.0	.0000	.0040	.0080	.0120	.0160	.0199	.0239	.0279	.0319	.0359
0.1	.0398	.0438	.0478	.0517	.0557	.0596	.0636	.0675	.0714	.0754
0.2	.0793	.0832	.0871	.0910	.0948	.0987	.1026	.1064	.1103	.1141
0.3	.1179	.1217	.1255	.1293	.1331	.1368	.1406	.1443	.1480	.1517
0.4	.1554	.1591	.1628	.1664	.1700	.1736	.1772	.1808	.1844	.1879
0.5	.1915	.1950	.1985	.2019	.2054	.2088	.2123	.2157	.2190	.2224
0.6	.2258	.2291	.2324	.2357	.2389	.2422	.2454	.2486	.2518	.2549
0.7	.2580	.2612	.2642	.2673	.2704	.2734	.2764	.2794	.2823	.2852
0.8	.2881	.2910	.2939	.2967	.2996	.3023	.3051	.3078	.3106	.3133
0.9	.3159	.3186	.3212	.3238	.3264	.3289	.3315	.3340	.3365	.3389