

Name:

ID number:

Time: 1 hour

Math 204

Quiz II

Fall Semester 06/07

Instructor: Mrs. Muna Jurdak

Section 9: Thurs 3:30 p.m.

Section 10: Tues. 2:00 p.m.

Section 11: Tues. 12:30 p.m.

Section 12: Tues. 11:00 a.m.

**Instructions:**

1. Write your name and ID number clearly where indicated.
2. Circle your section number above, according to the time of the problem solving session in which you are enrolled.
3. **Solve the problems on this, the white question sheet.** Use the colored sheets for scratch work only. You may use the back of a white sheet to complete the solution of a problem.
4. Write your name on the colored scratch sheet also.
5. Round answers correct to 2 decimal places.
6. **Show your work** in all the problems.
7. If you fail to write your name, ID number, or to circle your section number, **you will lose grades.**

1	2	3	4	5	6	7	Total
/11	/11	/18	/12	/10	/20	/18	/100

(11%) 1. Given the data set:

1    2    3    10    10    10    20

Find its standard deviation.

(11%) 2. A random variable  $X$  has the following probability distribution:

X	2	4	6	8
P(X)	.1	.3	.4	

Find the mean  $\mu$  of this distribution.

(18%) 3. Five percent of the students enrolled at a large university live in the dorm. If 6 of these university students are picked at random, what is the probability that:

(a) Exactly 2 of them live in the dorm?

(b) At least one of them lives in the dorm?

(12%) 4. Find each of the following:

(a)  $f'(x)$  if  $f(x) = x(x^3 + 1)^{1/4}$

(b)  $\frac{dy}{dx}$  if  $y = u^3 + 2u$  and  $u = \frac{2x+1}{x+1}$ . Use the chain rule.

(10%) 5. The population of a country is estimated by the function  $P = 100e^{0.035t}$ , where  $P$  equals the population in millions and  $t$  equals time measured in years since the year 2000. At what rate is the population expected to be increasing in the year 2007 (at  $t = 7$ )?

(20%) 6. Suppose that students' IQ scores form a normal distribution with mean  $\mu = 100$  and standard deviation  $\sigma = 20$ . If a student is chosen at random, find the probability that:

(a) His IQ score is between 60 and 115.

(b) His IQ score is less than 92.

(18%) 7. The balls contained in a box are described in the following table:

	Small	Big	Total
Red	14		18
Yellow		12	17

A ball is picked at random from the box.

(b) Given that the ball selected is small, what is the probability that it is red?

(c) Given that the ball selected is yellow, what is the probability that it is big?

CHAPTER 14 PROBABILITY DISTRIBUTIONS

**Area Under the Standard Normal Curve**

	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
0.0	.0000	.0040	.0080	.0120	.0160	.0199	.0239	.0279	.0319	.0359
0.1	.0398	.0438	.0478	.0517	.0557	.0596	.0636	.0675	.0714	.0753
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	.2257	.2291	.2324	.2357	.2389	.2422	.2454	.2486	.2518	.2549
0.7	.2580	.2612	.2642	<u>.2673</u>	.2704	<u>.2734</u>	.2764	.2794	.2823	.2852
0.8	.2881	.2910	.2939	.2967	.2995	.3023	.3051	.3078	.3106	.3133
0.9	.3159	.3186	.3212	.3238	.3264	.3289	.3315	.3340	.3365	.3389
1.0	.3413	.3438	.3461	.3485	.3508	.3531	.3554	.3577	.3599	.3621
1.1	.3643	.3665	.3686	.3708	.3729	.3749	.3770	.3790	.3810	.3830
1.2	.3849	.3869	.3888	.3907	.3925	.3944	.3962	.3980	.3997	.4015
1.3	.4032	.4049	.4066	.4082	.4099	.4115	.4131	.4147	.4162	.4177
1.4	.4192	.4207	.4222	.4236	.4251	.4265	.4279	.4292	.4306	.4319
1.5	.4332	.4345	.4357	.4370	.4382	.4394	.4406	.4418	.4429	.4441
1.6	.4452	.4463	.4474	.4484	.4495	.4505	.4515	.4525	.4535	.4545
1.7	.4554	.4564	.4573	.4582	.4591	.4599	.4608	.4616	.4625	.4633
1.8	.4641	.4649	.4656	.4664	.4671	.4678	.4686	.4693	.4699	.4706
1.9	.4713	.4719	.4726	.4732	.4738	.4744	.4750	.4756	.4761	.4767
2.0	.4772	.4778	.4783	.4788	.4793	.4798	.4803	.4808	.4812	.4817
2.1	.4821	.4826	.4830	.4834	.4838	.4842	.4846	.4850	.4854	.4857
2.2	.4861	.4864	.4868	.4871	.4875	.4878	.4881	.4884	.4887	.4890
2.3	.4893	.4896	.4898	.4901	.4904	.4906	.4909	.4911	.4913	.4916
2.4	.4918	.4920	.4922	.4925	.4927	.4929	.4931	.4932	.4934	.4936
2.5	.4938	.4940	.4941	.4943	.4945	.4946	.4948	.4949	.4951	.4952
2.6	.4953	.4955	.4956	.4957	.4959	.4960	.4961	.4962	.4963	.4964
2.7	<u>.4965</u>	.4966	.4967	.4968	.4969	.4970	.4971	.4972	.4973	.4974
2.8	.4974	.4975	.4976	.4977	.4977	.4978	.4979	.4979	.4980	.4981
2.9	.4981	.4982	.4982	.4983	.4984	.4984	.4985	.4985	.4986	.4986
3.0	.49865	.4987	.4987	.4988	.4988	.4989	.4989	.4989	.4990	.4990

