MATH 121 FINAL EXAM

There will be **120** minutes for you to finish the exam, if you ever get stuck, move on and circle back to it. **No calculators**, one problem per sheet, 200 points in total

- 1. (a) (10 points) What is $\int \tan^2 x dx$
 - (b) (10 points) What is $\int (7x-4)e^{2x} dx$
 - (c) (10 points) Evaluate $\int \frac{8x}{e^{x^2}} dx$
 - (d) (10 points) Evaluate $\int_0^{\pi} x \sin(8x) dx$
- 2. (a) (10 points) If f(t) is the solution to the initial value problem $y' = e^t + y, y(0) = 0$, find f(0), f'(0)
 - (b) (10 points) Solve the differential equation $\frac{dy}{dt} = \frac{t^2y^2}{t^3+8}$
 - (c) (10 points) Solve the initial value problem $y' + y = e^{2t}$, y(0) = -1
- 3. (a) (10 points) Evaluate $\sum_{k=0}^{\infty} \frac{3^k}{4^{k+1}}$
 - (b) (10 points) Determine which rational number has decimal expansion $2.7\overline{18}$
 - (c) (10 points) Determine if the following series converges $\sum_{k=2}^{\infty} \frac{1}{k\sqrt{\ln k}}$
 - (d) (10 points) What is the Taylor series of $\frac{2}{x^{-2}e^{x^3}}$ at x=0, include at least four non-zero terms
- 4. (a) (20 points) Suppose you are playing a game, there are three choices, you can take a bet, if you choose to take bet A, there is 10% probability of winning \$5000, 20% probability of lossing \$2000, hence 70% probability of not lossing or gaining anything, if you choose to take bet B, then there is 28% probability of winning \$1000, 72% probability of lossing \$100, and if you don't bet at all, you are guaranteed to win \$200, should you bet? if so, which bet should you choose?
- 5. (a) (20 points) The time(in minutes) required to complete an assembly on a production line is a random variable X with cumulative distribution function $F(x) = \frac{1}{125}x^3, 0 \le x \le 5$
 - (a) Find E(X)
 - (B) Compute Var(X)

- 6. (a) (30 points) In a certain town, there are two competing taxicab companies, Red Cab and Blue Cab.

 The taxis mix with downtown traffic in a random manner. There are five times as many Red taxis as Blue taxis. Suppose you stand on a downtown street and count the number X of Red taxis before the first Blue taxi appears
 - (a) Determine the formula for Pr(X = n)
 - (b) What is the likelihood of observing at least four Red taxis before the first Blue taxi?
 - (c) What is the average number of consecutive Red taxis prior to the appearance of a Blue taxi?
- 7. (a) (20 points) Let X be a normal distribution with expected value 3 and variance 4
 - (a) what is the probability of $X \geq 7$
 - (a) what is the probability of $X \leq -1$

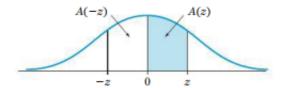


TABLE 1 Areas under the Standard Normal Curve

0.0 .0000 .0040 .0080 .0120 .0160 .0199 .0239 .0279 .0319 .035 0.1 .0398 .0438 .0478 .0517 .0557 .0596 .0636 .0675 .0714 .075 0.2 .0793 .0832 .0871 .0910 .0948 .0987 .1026 .1064 .1103 .114 0.3 .1179 .1217 .1255 .1293 .1331 .1368 .1406 .1443 .1480 .151 0.4 .1554 .1591 .1628 .1664 .1700 .1736 .1772 .1808 .1844 .187 0.5 .1915 .1950 .1985 .2019 .2054 .2088 .2123 .2157 .2190 .222 0.6 .2258 .2291 .2324 .2357 .2389 .2422 .2454 .2486 .2518 .254 0.7 .2580 .2612 .2642 .2673 .2704 .273	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 0.5 .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 .2881 0.8 .281 .2910 .2939 .2967 .2996 <t< th=""><th>IMDL</th><th>E I Alea</th><th>is under t</th><th>ne Stanua</th><th>aru Norm</th><th>at cui ve</th><th></th><th></th><th></th><th></th><th></th></t<>	IMDL	E I Alea	is under t	ne Stanua	aru Norm	at cui ve					
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1.0 .3413 .3438 .3461 .3485 .3508 .3531 .3554 .3577 .3599 .362 1.1 .3643 .3665 .3686 .3708 .3729 .3749 .3770 .3790 .3810 .382 1.2 .3849 .3869 .3888 .3907 .3925 .3944 .3962 .3980 .3997 .401 1.3 .4032 .4049 .4066 .4082 .4099 .4115 .4131 .4147 .4162 .417 1.4 .4192 .4207 .4222 .4236 .4251 .4265 .4279 .4292 .4306 .431 1.5 .4332 .4345 .4357 .4370 .4382 .4394 .4406 .4418 .4429 .4444 1.6 .4452 .4463 .4474 .4484 .4495 .4505 .4515 .4525 .4535 .453 1.7 .4554 .4564 .4573 .4582 .4591 .45	1.0 .3413 .3438 .3461 .3485 .3508 .3531 .3554 .3577 .3599 .3621 1.1 .3643 .3665 .3686 .3708 .3729 .3749 .3770 .3790 .3810 .3820 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 <	0.8	.2881	.2910	.2939	.2967	.2996	.3023	.3051	.3078	.3106	.3133
1.1 .3643 .3665 .3686 .3708 .3729 .3749 .3770 .3790 .3810 .382 1.2 .3849 .3869 .3888 .3907 .3925 .3944 .3962 .3980 .3997 .401 1.3 .4032 .4049 .4066 .4082 .4099 .4115 .4131 .4147 .4162 .417 1.4 .4192 .4207 .4222 .4236 .4251 .4265 .4279 .4292 .4306 .431 1.5 .4332 .4345 .4357 .4370 .4382 .4394 .4406 .4418 .4429 .444 1.6 .4452 .4463 .4474 .4484 .4495 .4505 .4515 .4525 .4535 .454 1.7 .4554 .4564 .4573 .4582 .4591 .4599 .4608 .4616 .4625 .463 1.8 .4641 .4649 .4656 .4664 .4671 .4678 .4686 .4693 .4699 .470 1.9 .4713 <td< td=""><td>1.1 .3643 .3665 .3686 .3708 .3729 .3749 .3770 .3790 .3810 .3820 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 .4553 .4582 .4591 .4599 .4608 .4616 .4625 .4633 1.8 .4641 .4649 .4656 .4664 .4671 .4678 .4686 .4693 .4893 .4808 .4812 .4817</td><td>0.9</td><td>.3159</td><td>.3186</td><td>.3212</td><td>.3238</td><td>.3264</td><td>.3289</td><td>.3315</td><td>.3340</td><td>.3365</td><td>.3389</td></td<>	1.1 .3643 .3665 .3686 .3708 .3729 .3749 .3770 .3790 .3810 .3820 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 .4553 .4582 .4591 .4599 .4608 .4616 .4625 .4633 1.8 .4641 .4649 .4656 .4664 .4671 .4678 .4686 .4693 .4893 .4808 .4812 .4817	0.9	.3159	.3186	.3212	.3238	.3264	.3289	.3315	.3340	.3365	.3389
1.2 .3849 .3869 .3888 .3907 .3925 .3944 .3962 .3980 .3997 .401 1.3 .4032 .4049 .4066 .4082 .4099 .4115 .4131 .4147 .4162 .417 1.4 .4192 .4207 .4222 .4236 .4251 .4265 .4279 .4292 .4306 .431 1.5 .4332 .4345 .4357 .4370 .4382 .4394 .4406 .4418 .4429 .444 1.6 .4452 .4463 .4474 .4484 .4495 .4505 .4515 .4525 .4535 .454 1.7 .4554 .4564 .4573 .4582 .4591 .4599 .4608 .4616 .4625 .463 1.8 .4641 .4649 .4656 .4664 .4671 .4678 .4686 .4693 .4699 .470 1.9 .4713 .4719 .4726 .4732 .4738 .4744 .4750 .4756 .4761 .476 2.0 .4772 <td< td=""><td>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</td><td>1.0</td><td>.3413</td><td>.3438</td><td>.3461</td><td>.3485</td><td>.3508</td><td>.3531</td><td>.3554</td><td>.3577</td><td>.3599</td><td>.3621</td></td<>	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	1.0	.3413	.3438	.3461	.3485	.3508	.3531	.3554	.3577	.3599	.3621
1.3 .4032 .4049 .4066 .4082 .4099 .4115 .4131 .4147 .4162 .417 1.4 .4192 .4207 .4222 .4236 .4251 .4265 .4279 .4292 .4306 .431 1.5 .4332 .4345 .4357 .4370 .4382 .4394 .4406 .4418 .4429 .4444 1.6 .4452 .4463 .4474 .4484 .4495 .4505 .4515 .4525 .4535 .454 1.7 .4554 .4564 .4573 .4582 .4591 .4599 .4608 .4616 .4625 .463 1.8 .4641 .4649 .4656 .4664 .4671 .4678 .4686 .4693 .4699 .470 1.9 .4713 .4719 .4726 .4732 .4738 .4744 .4750 .4756 .4761 .476 2.0 .4772 .4778 .4783 .4788 .4793 .47	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 <	1.1	.3643	.3665	.3686	.3708	.3729	.3749	.3770	.3790	.3810	.3820
1.4 .4192 .4207 .4222 .4236 .4251 .4265 .4279 .4292 .4306 .431 1.5 .4332 .4345 .4357 .4370 .4382 .4394 .4406 .4418 .4429 .444 1.6 .4452 .4463 .4474 .4484 .4495 .4505 .4515 .4525 .4535 .454 1.7 .4554 .4564 .4573 .4582 .4591 .4599 .4608 .4616 .4625 .463 1.8 .4641 .4649 .4656 .4664 .4671 .4678 .4686 .4693 .4699 .470 1.9 .4713 .4719 .4726 .4732 .4738 .4744 .4750 .4756 .4761 .476 2.0 .4772 .4778 .4783 .4788 .4793 .4798 .4803 .4808 .4812 .481 2.1 .4821 .4826 .4830 .4834 .4838 .4842 .4846 .4850 .4854 .485 2.2 .4861 <td< td=""><td>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 .4864 .4868 .4871 .4875 .4878 .4881 .4884 .4887 .4890 2.3 .4893</td><td>1.2</td><td>.3849</td><td>.3869</td><td>.3888</td><td>.3907</td><td>.3925</td><td>.3944</td><td>.3962</td><td>.3980</td><td>.3997</td><td>.4015</td></td<>	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 .4864 .4868 .4871 .4875 .4878 .4881 .4884 .4887 .4890 2.3 .4893	1.2	.3849	.3869	.3888	.3907	.3925	.3944	.3962	.3980	.3997	.4015
1.5 .4332 .4345 .4357 .4370 .4382 .4394 .4406 .4418 .4429 .4441 1.6 .4452 .4463 .4474 .4484 .4495 .4505 .4515 .4525 .4535 .454 1.7 .4554 .4564 .4573 .4582 .4591 .4599 .4608 .4616 .4625 .463 1.8 .4641 .4649 .4656 .4664 .4671 .4678 .4686 .4693 .4699 .470 1.9 .4713 .4719 .4726 .4732 .4738 .4744 .4750 .4756 .4761 .476 2.0 .4772 .4778 .4783 .4788 .4793 .4798 .4803 .4808 .4812 .481 2.1 .4821 .4826 .4830 .4834 .4838 .4842 .4846 .4850 .4854 .485 2.2 .4861 .4864 .4868 .4871 .4875 .4878 .4881 .4884 .4887 .489 2.3 .4893 <t< td=""><td>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 .4857 2.2 .4861 .4864 .4868 .4871 .4875 .4878 <</td><td>1.3</td><td>.4032</td><td>.4049</td><td>.4066</td><td>.4082</td><td>.4099</td><td>.4115</td><td>.4131</td><td>.4147</td><td>.4162</td><td>.4177</td></t<>	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 .4857 2.2 .4861 .4864 .4868 .4871 .4875 .4878 <	1.3	.4032	.4049	.4066	.4082	.4099	.4115	.4131	.4147	.4162	.4177
1.6 .4452 .4463 .4474 .4484 .4495 .4505 .4515 .4525 .4535 .454 1.7 .4554 .4564 .4573 .4582 .4591 .4599 .4608 .4616 .4625 .463 1.8 .4641 .4649 .4656 .4664 .4671 .4678 .4686 .4693 .4699 .470 1.9 .4713 .4719 .4726 .4732 .4738 .4744 .4750 .4756 .4761 .476 2.0 .4772 .4778 .4783 .4788 .4793 .4798 .4803 .4808 .4812 .481 2.1 .4821 .4826 .4830 .4834 .4838 .4842 .4846 .4850 .4854 .485 2.2 .4861 .4864 .4868 .4871 .4875 .4878 .4881 .4884 .4887 .489 2.3 .4893 .4896 .4898 .4901 .4904 .4906 .4909 .4911 .4913 .491 2.4 .4918 <td< td=""><td>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 .4857 .4857 2.2 .4861 .4864 .4868 .4871 .4875 .4878 .4881 .4884 .4887 .4890 2.3 .4893 .4896 .4898 .4901 .4904 .4906 <</td><td>1.4</td><td>.4192</td><td>.4207</td><td>.4222</td><td>.4236</td><td>.4251</td><td>.4265</td><td>.4279</td><td>.4292</td><td>.4306</td><td>.4319</td></td<>	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 .4857 .4857 2.2 .4861 .4864 .4868 .4871 .4875 .4878 .4881 .4884 .4887 .4890 2.3 .4893 .4896 .4898 .4901 .4904 .4906 <	1.4	.4192	.4207	.4222	.4236	.4251	.4265	.4279	.4292	.4306	.4319
1.7 .4554 .4564 .4573 .4582 .4591 .4599 .4608 .4616 .4625 .463 1.8 .4641 .4649 .4656 .4664 .4671 .4678 .4686 .4693 .4699 .470 1.9 .4713 .4719 .4726 .4732 .4738 .4744 .4750 .4756 .4761 .476 2.0 .4772 .4778 .4783 .4788 .4793 .4798 .4803 .4808 .4812 .481 2.1 .4821 .4826 .4830 .4834 .4838 .4842 .4846 .4850 .4854 .485 2.2 .4861 .4864 .4868 .4871 .4875 .4878 .4881 .4884 .4887 .489 2.3 .4893 .4896 .4898 .4901 .4904 .4906 .4909 .4911 .4913 .491 2.4 .4918 .4920 .4922 .4925 .4927 .4929 .4931 .4932 .4934 .493 2.5 .4938 <td< td=""><td>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</td><td>1.5</td><td>.4332</td><td>.4345</td><td>.4357</td><td>.4370</td><td>.4382</td><td>.4394</td><td>.4406</td><td>.4418</td><td>.4429</td><td>.4441</td></td<>	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	1.5	.4332	.4345	.4357	.4370	.4382	.4394	.4406	.4418	.4429	.4441
1.8 .4641 .4649 .4656 .4664 .4671 .4678 .4686 .4693 .4699 .470 1.9 .4713 .4719 .4726 .4732 .4738 .4744 .4750 .4756 .4761 .476 2.0 .4772 .4778 .4783 .4788 .4793 .4798 .4803 .4808 .4812 .481 2.1 .4821 .4826 .4830 .4834 .4838 .4842 .4846 .4850 .4854 .485 2.2 .4861 .4864 .4868 .4871 .4875 .4878 .4881 .4884 .4887 .489 2.3 .4893 .4896 .4898 .4901 .4904 .4906 .4909 .4911 .4913 .491 2.4 .4918 .4920 .4922 .4925 .4927 .4929 .4931 .4932 .4934 .493 2.5 .4938 .4940 .4941 .4943 .4945 .4946 .4948 .4949 .4951 .495 2.6 .4953 <td< td=""><td>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</td><td>1.6</td><td>.4452</td><td>.4463</td><td>.4474</td><td>.4484</td><td>.4495</td><td>.4505</td><td>.4515</td><td>.4525</td><td>.4535</td><td>.4545</td></td<>	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	1.6	.4452	.4463	.4474	.4484	.4495	.4505	.4515	.4525	.4535	.4545
1.9 .4713 .4719 .4726 .4732 .4738 .4744 .4750 .4756 .4761 .476 2.0 .4772 .4778 .4783 .4788 .4793 .4798 .4803 .4808 .4812 .481 2.1 .4821 .4826 .4830 .4834 .4838 .4842 .4846 .4850 .4854 .485 2.2 .4861 .4864 .4868 .4871 .4875 .4878 .4881 .4884 .4887 .489 2.3 .4893 .4896 .4898 .4901 .4904 .4906 .4909 .4911 .4913 .491 2.4 .4918 .4920 .4922 .4925 .4927 .4929 .4931 .4932 .4934 .493 2.5 .4938 .4940 .4941 .4943 .4945 .4946 .4948 .4949 .4951 .495 2.6 .4953 .4955 .4956 .4957 .4959 .4960 .4961 .4962 .4963 .496 2.7 .4965 <td< td=""><td>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 .4965</td><td>1.7</td><td>.4554</td><td>.4564</td><td>.4573</td><td>.4582</td><td>.4591</td><td>.4599</td><td>.4608</td><td>.4616</td><td>.4625</td><td>.4633</td></td<>	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 .4965	1.7	.4554	.4564	.4573	.4582	.4591	.4599	.4608	.4616	.4625	.4633
2.0 .4772 .4778 .4783 .4788 .4793 .4798 .4803 .4808 .4812 .481 2.1 .4821 .4826 .4830 .4834 .4838 .4842 .4846 .4850 .4854 .485 2.2 .4861 .4864 .4868 .4871 .4875 .4878 .4881 .4884 .4887 .489 2.3 .4893 .4896 .4898 .4901 .4904 .4906 .4909 .4911 .4913 .4913 2.4 .4918 .4920 .4922 .4925 .4927 .4929 .4931 .4932 .4934 .493 2.5 .4938 .4940 .4941 .4943 .4945 .4946 .4948 .4949 .4951 .495 2.6 .4953 .4955 .4956 .4957 .4959 .4960 .4961 .4962 .4963 .496 2.7 .4965 .4966 .4967 .4968 .4969 .4970 .4971 .4972 .4973 .4978 2.8 .4974 <	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 .4965 .4966 .4967 .4968 .4969 .4970 .4971 .4972 .4973 .4974 2.9 .4981	1.8	.4641	.4649	.4656	.4664	.4671	.4678	.4686	.4693	.4699	.4706
2.1 .4821 .4826 .4830 .4834 .4838 .4842 .4846 .4850 .4854 .485 2.2 .4861 .4864 .4868 .4871 .4875 .4878 .4881 .4884 .4887 .489 2.3 .4893 .4896 .4898 .4901 .4904 .4906 .4909 .4911 .4913 .491 2.4 .4918 .4920 .4922 .4925 .4927 .4929 .4931 .4932 .4934 .493 2.5 .4938 .4940 .4941 .4943 .4945 .4946 .4948 .4949 .4951 .495 2.6 .4953 .4955 .4956 .4957 .4959 .4960 .4961 .4962 .4963 .496 2.7 .4965 .4966 .4967 .4968 .4969 .4970 .4971 .4972 .4973 .497 2.8 .4974 .4975 .4976 .4977 .4978 .4979 .4979 .4980 .498 3.0 .4987 .4982 <td< td=""><td>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 .4965 .4966 .4967 .4968 .4969 .4970 .4971 .4972 .4973 .4974 2.8 .4974 .4975 .4976 .4977 .4977 .4978 .4979 .4980 .4986 3.0 .4987 .4987</td><td>1.9</td><td>.4713</td><td>.4719</td><td>.4726</td><td>.4732</td><td>.4738</td><td>.4744</td><td>.4750</td><td>.4756</td><td>.4761</td><td>.4767</td></td<>	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 .4965 .4966 .4967 .4968 .4969 .4970 .4971 .4972 .4973 .4974 2.8 .4974 .4975 .4976 .4977 .4977 .4978 .4979 .4980 .4986 3.0 .4987 .4987	1.9	.4713	.4719	.4726	.4732	.4738	.4744	.4750	.4756	.4761	.4767
2.2 .4861 .4864 .4868 .4871 .4875 .4878 .4881 .4884 .4887 .489 2.3 .4893 .4896 .4898 .4901 .4904 .4906 .4909 .4911 .4913 .491 2.4 .4918 .4920 .4922 .4925 .4927 .4929 .4931 .4932 .4934 .493 2.5 .4938 .4940 .4941 .4943 .4945 .4946 .4948 .4949 .4951 .495 2.6 .4953 .4955 .4956 .4957 .4959 .4960 .4961 .4962 .4963 .496 2.7 .4965 .4966 .4967 .4968 .4969 .4970 .4971 .4972 .4973 .497 2.8 .4974 .4975 .4976 .4977 .4977 .4978 .4979 .4979 .4980 .498 2.9 .4981 .4982 .4983 .4984 .4984 .4985 .4985 .4986 .498 3.0 .4987 .4987 <td< td=""><td>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 .4965 .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 .4983 .4984 .4984 .4985 .4985 .4986 .4986 3.0 .4987 .4987</td><td>2.0</td><td>.4772</td><td>.4778</td><td>.4783</td><td>.4788</td><td>.4793</td><td>.4798</td><td>.4803</td><td>.4808</td><td>.4812</td><td>.4817</td></td<>	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 .4965 .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 .4983 .4984 .4984 .4985 .4985 .4986 .4986 3.0 .4987 .4987	2.0	.4772	.4778	.4783	.4788	.4793	.4798	.4803	.4808	.4812	.4817
2.3 .4893 .4896 .4898 .4901 .4904 .4906 .4909 .4911 .4913 .491 2.4 .4918 .4920 .4922 .4925 .4927 .4929 .4931 .4932 .4934 .493 2.5 .4938 .4940 .4941 .4943 .4945 .4946 .4948 .4949 .4951 .495 2.6 .4953 .4955 .4956 .4957 .4959 .4960 .4961 .4962 .4963 .496 2.7 .4965 .4966 .4967 .4968 .4969 .4970 .4971 .4972 .4973 .497 2.8 .4974 .4975 .4976 .4977 .4977 .4978 .4979 .4979 .4980 .498 2.9 .4981 .4982 .4983 .4984 .4984 .4985 .4985 .4986 .498 3.0 .4987 .4987 .4988 .4988 .4989 .4989 .4990 .4993 .499 3.1 .4990 .4991 .4991 <td< td=""><td>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 .4965 .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 .4983 .4984 .4984 .4985 .4985 .4986 .4986 3.0 .4987 .4987 .4988 .4989 .4989 .4989 .4990 .4990 3.1 .4990 .4991 .4991 .4991</td><td>2.1</td><td>.4821</td><td>.4826</td><td>.4830</td><td>.4834</td><td>.4838</td><td>.4842</td><td>.4846</td><td>.4850</td><td>.4854</td><td>.4857</td></td<>	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 .4965 .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 .4983 .4984 .4984 .4985 .4985 .4986 .4986 3.0 .4987 .4987 .4988 .4989 .4989 .4989 .4990 .4990 3.1 .4990 .4991 .4991 .4991	2.1	.4821	.4826	.4830	.4834	.4838	.4842	.4846	.4850	.4854	.4857
2.4 .4918 .4920 .4922 .4925 .4927 .4929 .4931 .4932 .4934 .493 2.5 .4938 .4940 .4941 .4943 .4945 .4946 .4948 .4949 .4951 .495 2.6 .4953 .4955 .4956 .4957 .4959 .4960 .4961 .4962 .4963 .496 2.7 .4965 .4966 .4967 .4968 .4969 .4970 .4971 .4972 .4973 .497 2.8 .4974 .4975 .4976 .4977 .4977 .4978 .4979 .4979 .4980 .498 2.9 .4981 .4982 .4983 .4984 .4984 .4985 .4985 .4986 .498 3.0 .4987 .4987 .4988 .4988 .4989 .4989 .4990 .4990 .4991 3.1 .4990 .4991 .4991 .4991 .4992 .4992 .4992 .4992 .4993 .4995 .4995 3.2 .4993 .4995 <	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 .4965 .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 .4983 .4984 .4984 .4985 .4985 .4986 .4986 3.0 .4987 .4987 .4988 .4988 .4989 .4989 .4989 .4990 .4990 3.1 .4990 .4991 .4991 .4992 .4992 .4992 .4992 .4992 .4993 .4993 3.2 .4993 .4995 .4995	2.2	.4861	.4864	.4868	.4871	.4875	.4878	.4881	.4884	.4887	.4890
2.5 .4938 .4940 .4941 .4943 .4945 .4946 .4948 .4949 .4951 .495 2.6 .4953 .4955 .4956 .4957 .4959 .4960 .4961 .4962 .4963 .496 2.7 .4965 .4966 .4967 .4968 .4969 .4970 .4971 .4972 .4973 .497 2.8 .4974 .4975 .4976 .4977 .4978 .4979 .4979 .4980 .498 2.9 .4981 .4982 .4983 .4984 .4984 .4985 .4985 .4986 .498 3.0 .4987 .4987 .4988 .4988 .4989 .4989 .4990 .4990 .499 3.1 .4990 .4991 .4991 .4992 .4992 .4992 .4992 .4993 .499 3.2 .4993 .4993 .4994 .4994 .4994 .4994 .4996 .4996 .4996 .4996 .4996 .4996 .4996 .4996 .4996 .4996 .4996	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 .4965 .4966 .4967 .4968 .4969 .4970 .4971 .4972 .4973 .4974 2.8 .4974 .4975 .4976 .4977 .4978 .4979 .4979 .4980 .4981 2.9 .4981 .4982 .4982 .4983 .4984 .4984 .4985 .4985 .4986 .4986 3.0 .4987 .4987 .4988 .4988 .4989 .4989 .4989 .4990 .4990 .4990 3.1 .4990 .4991 .4991 .4992 .4992 .4992 .4992 .4993 .4993 .4995 3.2 .4993 .4995 .4994 .4994 .4994 .4994 .4994 .4996 .4996 .4996 .4996 .4996 .4996 .4996 <td>2.3</td> <td>.4893</td> <td>.4896</td> <td>.4898</td> <td>.4901</td> <td>.4904</td> <td>.4906</td> <td>.4909</td> <td>.4911</td> <td>.4913</td> <td>.4916</td>	2.3	.4893	.4896	.4898	.4901	.4904	.4906	.4909	.4911	.4913	.4916
2.6 .4953 .4955 .4956 .4957 .4959 .4960 .4961 .4962 .4963 .496 2.7 .4965 .4966 .4967 .4968 .4969 .4970 .4971 .4972 .4973 .497 2.8 .4974 .4975 .4976 .4977 .4977 .4978 .4979 .4979 .4980 .498 2.9 .4981 .4982 .4982 .4983 .4984 .4984 .4985 .4985 .4986 .498 3.0 .4987 .4987 .4988 .4988 .4989 .4989 .4989 .4990 .4990 3.1 .4990 .4991 .4991 .4992 .4992 .4992 .4992 .4993 .4995 .4995 3.2 .4993 .4993 .4994 .4994 .4994 .4994 .4994 .4996 .4996 .4996 .4996 .4996 .4996 .4996 .4996 .4996 .4996 .4996 .4996 .4996 .4996 .4996 .4996 .4996 .4996 .4996 <td>2.6 .4953 .4955 .4956 .4957 .4959 .4960 .4961 .4962 .4963 .4964 2.7 .4965 .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 .4987 .4987 .4988 .4988 .4989 .4989 .4989 .4990 .4990 3.1 .4990 .4991 .4991 .4992 .4992 .4992 .4992 .4993 .4993 3.2 .4993 .4994 .4994 .4994 .4994 .4994 .4995 .4995 .4995 3.3 .4995 .4995 .4995 .4996 .4996 .4996 .4996 .4996 .4996 .4996 .4997 .4997 .4997 .4997 .4997 .4997<td>2.4</td><td>.4918</td><td>.4920</td><td>.4922</td><td>.4925</td><td>.4927</td><td>.4929</td><td>.4931</td><td>.4932</td><td>.4934</td><td>.4936</td></td>	2.6 .4953 .4955 .4956 .4957 .4959 .4960 .4961 .4962 .4963 .4964 2.7 .4965 .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 .4987 .4987 .4988 .4988 .4989 .4989 .4989 .4990 .4990 3.1 .4990 .4991 .4991 .4992 .4992 .4992 .4992 .4993 .4993 3.2 .4993 .4994 .4994 .4994 .4994 .4994 .4995 .4995 .4995 3.3 .4995 .4995 .4995 .4996 .4996 .4996 .4996 .4996 .4996 .4996 .4997 .4997 .4997 .4997 .4997 .4997 <td>2.4</td> <td>.4918</td> <td>.4920</td> <td>.4922</td> <td>.4925</td> <td>.4927</td> <td>.4929</td> <td>.4931</td> <td>.4932</td> <td>.4934</td> <td>.4936</td>	2.4	.4918	.4920	.4922	.4925	.4927	.4929	.4931	.4932	.4934	.4936
2.7 .4965 .4966 .4967 .4968 .4969 .4970 .4971 .4972 .4973 .4974 2.8 .4974 .4975 .4976 .4977 .4977 .4978 .4979 .4979 .4980 .498 2.9 .4981 .4982 .4983 .4984 .4984 .4985 .4985 .4986 .498 3.0 .4987 .4987 .4988 .4988 .4989 .4989 .4989 .4990 .4990 .499 3.1 .4990 .4991 .4991 .4992 .4992 .4992 .4992 .4993 .4993 .499 3.2 .4993 .4993 .4994 .4994 .4994 .4994 .4994 .4995 .4995 .4996 .499	2.7 .4965 .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 .4987 .4987 .4988 .4988 .4989 .4989 .4989 .4990 .4990 .4990 3.1 .4990 .4991 .4991 .4992 .4992 .4992 .4992 .4993 .4993 .4993 3.2 .4993 .4994 .4994 .4994 .4994 .4994 .4995 .4995 .4995 .4995 3.3 .4995 .4995 .4996 .4996 .4996 .4996 .4996 .4996 .4996 .4996 .4997 .4997 .4997 .4997 .4997 .4997 .4997 .4997 .4997 .4997 .4997 .4997 .4997 .4997 .499	2.5	.4938	.4940	.4941	.4943	.4945	.4946	.4948	.4949	.4951	.4952
2.8 .4974 .4975 .4976 .4977 .4977 .4978 .4979 .4979 .4980 .498 2.9 .4981 .4982 .4983 .4984 .4984 .4985 .4985 .4986 .498 3.0 .4987 .4987 .4988 .4988 .4989 .4989 .4989 .4990 .4990 .499 3.1 .4990 .4991 .4991 .4992 .4992 .4992 .4992 .4993 .4993 .499 3.2 .4993 .4993 .4994 .4994 .4994 .4994 .4994 .4995 .4995 .4996	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 .4987 .4987 .4988 .4988 .4989 .4989 .4989 .4990 .4990 3.1 .4990 .4991 .4991 .4992 .4992 .4992 .4992 .4992 .4993 .4993 .4993 3.2 .4993 .4993 .4994 .4994 .4994 .4994 .4995 .4995 .4995 .4995 3.3 .4995 .4995 .4995 .4996 .4996 .4996 .4996 .4996 .4996 .4997	2.6	.4953	.4955	.4956	.4957	.4959	.4960	.4961	.4962	.4963	.4964
2.9 .4981 .4982 .4982 .4983 .4984 .4984 .4985 .4985 .4986 .498 3.0 .4987 .4987 .4988 .4988 .4989 .4989 .4989 .4990 .4990 .499 3.1 .4990 .4991 .4991 .4992 .4992 .4992 .4992 .4993 .4993 .499 3.2 .4993 .4993 .4994 .4994 .4994 .4994 .4994 .4995 .4995 .4996 3.3 .4995 .4995 .4996 .4996 .4996 .4996 .4996 .4996 .4996 .4996 .4996	2.9 .4981 .4982 .4982 .4983 .4984 .4984 .4985 .4985 .4986 .4986 3.0 .4987 .4987 .4988 .4988 .4989 .4989 .4989 .4990 .4990 .4990 3.1 .4990 .4991 .4991 .4992 .4992 .4992 .4992 .4993 .4993 .4993 3.2 .4993 .4993 .4994 .4994 .4994 .4994 .4994 .4995 .4995 .4995 3.3 .4995 .4995 .4996 .4996 .4996 .4996 .4996 .4996 .4997 .4998 </td <td>2.7</td> <td>.4965</td> <td>.4966</td> <td>.4967</td> <td>.4968</td> <td>.4969</td> <td>.4970</td> <td>.4971</td> <td>.4972</td> <td>.4973</td> <td>.4974</td>	2.7	.4965	.4966	.4967	.4968	.4969	.4970	.4971	.4972	.4973	.4974
3.0 .4987 .4987 .4988 .4988 .4989 .4989 .4989 .4990 .4990 .4991 3.1 .4990 .4991 .4991 .4992 .4992 .4992 .4992 .4992 .4993 .4993 .499 3.2 .4993 .4993 .4994 .4994 .4994 .4994 .4994 .4995 .4995 .4996 3.3 .4995 .4995 .4996 .4996 .4996 .4996 .4996 .4996 .4996 .4996 .4996	3.0 .4987 .4987 .4988 .4988 .4989 .4989 .4989 .4990 .4990 .4990 3.1 .4990 .4991 .4991 .4992 .4992 .4992 .4992 .4992 .4993 .4993 .4993 3.2 .4993 .4993 .4994 .4994 .4994 .4994 .4995 .4995 .4995 .4995 3.3 .4995 .4995 .4996 .4996 .4996 .4996 .4996 .4996 .4997	2.8	.4974	.4975	.4976	.4977	.4977	.4978	.4979	.4979	.4980	.4981
3.1 .4990 .4991 .4991 .4992 .4992 .4992 .4992 .4993 .4993 3.2 .4993 .4994 .4994 .4994 .4994 .4994 .4995 .4995 .4995 3.3 .4995 .4995 .4996 .4996 .4996 .4996 .4996 .4996 .4996 .4996	3.1 .4990 .4991 .4991 .4992 .4992 .4992 .4992 .4993 .4993 3.2 .4993 .4993 .4994 .4994 .4994 .4994 .4995 .4995 .4995 3.3 .4995 .4995 .4996 .4996 .4996 .4996 .4996 .4996 .4997 3.4 .4997 .4997 .4997 .4997 .4997 .4997 .4997 .4997 .4997	2.9	.4981	.4982	.4982	.4983	.4984	.4984	.4985	.4985	.4986	.4986
3.2 .4993 .4993 .4994 .4994 .4994 .4994 .4994 .4995 .4995 .4995 3.3 .4995 .4995 .4996 .4996 .4996 .4996 .4996 .4996 .4996 .4996 .4996	3.2 .4993 .4994 .4994 .4994 .4994 .4994 .4995 .4995 .4995 3.3 .4995 .4995 .4996 .4996 .4996 .4996 .4996 .4996 .4996 .4997 3.4 .4997 .4997 .4997 .4997 .4997 .4997 .4997 .4997 .4998	3.0	.4987	.4987	.4987	.4988	.4988	.4989	.4989	.4989	.4990	.4990
3.3 .4995 .4995 .4995 .4996 .4996 .4996 .4996 .4996 .4996 .4996 .499	3.3 .4995 .4995 .4996 .4996 .4996 .4996 .4996 .4996 .4996 .4996 .4997 3.4 .4997 .4997 .4997 .4997 .4997 .4997 .4997 .4997 .4997 .4998	3.1	.4990	.4991	.4991	.4991	.4992	.4992	.4992	.4992	.4993	.4993
	3.4 .4997 .4997 .4997 .4997 .4997 .4997 .4997 .4997 .4997 .4998	3.2	.4993	.4993	.4994	.4994	.4994	.4994	.4994	.4995	.4995	.4995
3.4 .4997 .4997 .4997 .4997 .4997 .4997 .4997 .4997 .4997 .4997		3.3	.4995	.4995	.4995	.4996	.4996	.4996	.4996	.4996	.4996	.4997
	3.5 .4998 .4998 .4998 .4998 .4998 .4998 .4998 .4998 .4998 .4998	3.4	.4997	.4997	.4997	.4997	.4997	.4997	.4997	.4997	.4997	.4998
3.5 .4998 .4998 .4998 .4998 .4998 .4998 .4998 .4998 .4998 .4998 .4998		3.5	.4998	.4998	.4998	.4998	.4998	.4998	.4998	.4998	.4998	.4998

/. (a)
$$\int tan^2x dx = \int sec^2x - 1 dx = tanx - x + C$$

(b)
$$\int (7x-4)e^{2x} dx = \frac{u=2x}{2} \int (\frac{7}{2}u-4)e^{u} du = \int \frac{7}{4}ue^{u} du - \int 2e^{u} du$$
$$= \frac{7}{4}(ue^{u}-e^{u}) - 2e^{u} + C = \frac{7}{4}ue^{u} - \frac{15}{4}e^{u} + C = \frac{7}{2}xe^{2x} - \frac{15}{4}e^{2x} + C$$

(c)
$$\int \frac{8x}{e^{x^2}} dx = \int 8x e^{-x^2} dx = \frac{u=x^2}{2} + \int e^{-u} du = -4e^{-u} + C = -4e^{-x^2} + C$$

(d)
$$\int_0^{\pi} x \sin(gx) dx = \frac{u = gx}{g} \int_0^{g\pi} u \sin u du = \frac{1}{g} \left[-u \cos u + \sin u \right]_0^{g\pi} = -\pi$$

2. (a)
$$f(0) = 0$$
, $f'(0) = e^{0} + f(0) = 1$

(b)
$$\frac{dy}{dt} = \frac{t^2y^2}{t^3+8} \Rightarrow \frac{dy}{y^2} = \frac{t^2dt}{t^3+8} \Rightarrow -\frac{1}{y} = \frac{1}{3}\ln(t^3+8) + C \Rightarrow y = -\frac{1}{\frac{1}{3}\ln(t^3+8) + C}$$

(c)
$$y'+y=e^{zt} \Rightarrow (e^{t}y)'=e^{3t} \Rightarrow e^{t}y=\frac{1}{3}e^{3t}+C$$
, plug in $y(0)=-1$, $C=-\frac{4}{3}$
thus $y(t)=\frac{1}{3}e^{2t}-\frac{4}{3}e^{-t}$

3. (a)
$$\sum_{k=0}^{\infty} \frac{3^k}{4^{k+1}} = \frac{1}{4} \sum_{k=0}^{\infty} \left(\frac{3}{4}\right)^k = \frac{1}{4} \cdot \frac{1}{1-\frac{3}{4}} = 1$$

(b)
$$2.7\overline{18} = 2.7 + 0.0\overline{18} = 2.7 + \frac{0.018}{|-0.01|} = 2.7 + \frac{2}{|10|} = \frac{299}{|10|}$$

(c) Let
$$f(x) = \frac{1}{x\sqrt{lmx}}, x \ge 2$$
, $f(x)$ is continuous and decreasing, thus we can use the integral test:
$$\int_{z}^{\infty} f(x) dx = \lim_{b \to \infty} \int_{z}^{b} \frac{1}{x\sqrt{lmx}} dx \xrightarrow{u=lnx} \lim_{b \to \infty} \int_{z}^{lnb} u^{-\frac{t}{2}} du = \lim_{b \to \infty} \left[2u^{\frac{t}{2}} \right]_{z}^{lnb} = \lim_{b \to \infty} \left[2(lnb)^{\frac{t}{2}} - 2\sqrt{2} \right] = \infty$$
Thus $\sum_{b=3}^{\infty} \frac{1}{k\sqrt{lmk}}$ does not converge

(d)
$$\frac{2}{x^{-2}e^{x^3}} = 2x^2e^{-x^3} = 2x^2\left(1+(-x^3)+\frac{1}{2!}(-x^3)^2+\frac{1}{3!}(-x^3)^3+\cdots\right)$$

= $2x^2\left(1-x^3+\frac{1}{2}x^6-\frac{1}{6}x^9+\cdots\right)=2x^2-2x^5+x^8-\frac{1}{3}x^{11}+\cdots$

Choose bet
$$A: E(X) = 5000.0.1 + (-2000).0.2 + 0.0.7 = /00$$

Choose bet
$$B : E(X) = /000 \cdot 0.28 + (-(00) \cdot 0.72 = 208)$$

Don't bet:
$$E(X) = 200 \cdot 1 = 200$$

Therefore you should bet for B

5. The probability density function is $f(x) = F'(x) = \frac{3}{125}x^2$

(a)
$$E(X) = \int_0^5 x f(x) dx = \int_0^5 \frac{3}{125} x^3 dx = \frac{3}{500} x^4 \Big|_0^5 = \frac{(5)^4}{4}$$

(b)
$$Var(X) = \int_0^5 x^2 f(x) dx - E(X)^2 = \int_0^5 \frac{3}{125} x^4 dx - \left(\frac{75}{4}\right)^2 = \frac{3}{625} x^5 \Big|_0^5 - \left(\frac{15}{4}\right)^2 = \frac{15}{16}$$

6. X satisfies geometric distribution with $p = \frac{5}{6}$, where p is the probability of a Red taxi showing up

(a)
$$Pr(X=n) = \left(\frac{5}{6}\right)^n \left(\frac{1}{6}\right)^n$$

(b)
$$P_r(X \ge 4) = 1 - P_r(X \le 3) = 1 - P_o - P_1 - P_2 - P_3 = 1 - \frac{1}{6} - \frac{5}{6} \frac{1}{6} - (\frac{5}{6})^2 \frac{1}{6} - (\frac{5}{6})^3 \frac{1}{6} = \frac{625}{1296}$$

(c)
$$E(X) = \frac{P}{1-P} = \frac{\frac{1}{5}}{1-\frac{1}{5}} = 5$$

7. Since X satisfies a normal distribution with expected value 3 and variance 4, $\frac{X-3}{2}=:Z$ satisfies standard normal distribution

(a)
$$P_r(X \ge 7) = P_r(\frac{X-3}{2} \ge \frac{7-3}{2}) = P_r(Z \ge 2) = P_r(Z \ge 0) - P_r(0 \le Z \le 2)$$

= $\frac{1}{2} - A(2) = 0.5 - 0.4772 = 0.228$

(b)
$$\Pr(X \le -1) = \Pr(\frac{X-3}{2} \le \frac{-1-3}{2}) = \Pr(Z \le -2) = \Pr(Z \ge 2) = 0.228$$