



# **Level 2 Mathematics and Statistics, 2017**

2.00 p.m. Friday 24 November 2017

FORMULAE SHEET for 91261, 91262, 91267

Refer to this sheet to answer the questions in your Question and Answer Booklets.

Check that this sheet is printed on the back.

YOU MAY KEEP THIS SHEET AT THE END OF THE EXAMINATION.

## **Quadratics**

If 
$$ax^2 + bx + c = 0$$
  
then  $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$   
and  $\Delta = b^2 - 4ac$ 

# Logarithms

If 
$$y = b^x$$
 then  $x = \log_b y$   

$$\log_b (x^n) = n \log_b x$$
If  $y = e^x$  then  $x = \log_e y (= \ln y)$ 

#### **Calculus**

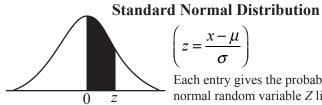
$$\frac{\mathrm{d}}{\mathrm{d}x}\Big(x^n\Big) = nx^{n-1}$$

If 
$$f'(x) = x^n$$
, then  $f(x) = \frac{x^{n+1}}{n+1} + c$ 

### **Probability**

$$z = \frac{x - \mu}{\sigma}$$

# L2-MATHF



$$\left(z = \frac{x - \mu}{x - \mu}\right)$$

Each entry gives the probability that the standardised normal random variable Z lies between 0 and z.

#### Differences

											Differences								
z	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
0.0	0000	0040	0000	.0120	0160	0100	0220	0270	0210	0250	4	0	12	16	20	24	20	32	26
														1					
0.1				.0517							4	-	12		20			32	
0.2	1			.0910							4		12		19			31	
0.3				.1293							4		11		19			30	
0.4	.1554	.1591	.1628	.1664	.1700	.1736	.1772	.1808	.1844	.1879	4	7	11	14	18	22	25	29	32
0.5	.1915	.1950	.1985	.2019	.2054	.2088	.2123	.2157	.2190	.2224	3	7	10	14	17	21	24	27	31
0.6	.2258	.2291	.2324	.2357	.2389	.2422	.2454	.2486	.2518	.2549	3	6	10	13	16	19	23	26	29
0.7	.2580	.2612	.2642	.2673	.2704	.2734	.2764	.2794	.2823	.2852	3	6	9	12	15	18	21	24	27
0.8	.2881	.2910	.2939	.2967	.2996	.3023	.3051	.3078	.3106	.3133	3	6	8	11	14	17	19	22	25
0.9	.3159	.3186	.3212	.3238	.3264	.3289	.3315	.3340	.3365	.3389	3	5	8	10	13	15	18	20	23
1.0	.3413	.3438	.3461	.3485	.3508	.3531	.3554	.3577	.3599	.3621	2	5	7	9	12	14	16	18	21
1.1	.3643	.3665	.3686	.3708	.3729	.3749	.3770	.3790	.3810	.3830	2	4	6	8	10	12	14	16	19
1.2	1			.3907							2	4	5	7	9	11	13	15	16
1.3				.4082							2	3	5	6	8	10	-	13	
1.4				.4236							1	3	4	6	7	8		11	
1.5	1332	1315	1357	.4370	1382	1391	1106	1/118	1120	4441	1	2	4	5	6	7	8	10	11
1.6	1			.4484							1	2	3	4	5	6	7	8	9
1.7				.4582							1	2	3	3	4	5	6	7	8
1.7				.4664							1	1	2	l		4	-	6	
											-	-	2	3 2	4		5		6
1.9	.4/13	.4/19	.4/26	.4732	.4/38	.4/44	.4/50	.4/56	.4/61	.4/6/	1	1	2	2	3	4	4	5	5
2.0	.4772	.4778	.4783	.4788	.4793	.4798	.4803	.4808	.4812	.4817	0	1	1	2	2	3	3	4	4
2.1	.4821	.4826	.4830	.4834	.4838	.4842	.4846	.4850	.4854	.4857	0	1	1	2	2	2	3	3	4
2.2	.4861	.4864	.4868	.4871	.4875	.4878	.4881	.4884	.4887	.4890	0	1	1	1	2	2	2	3	3
2.3	.4893	.4896	.4898	.4901	.4904	.4906	.4909	.4911	.4913	.4916	0	0	1	1	1	2	2	2	2
2.4	.4918	.4920	.4922	.4925	.4927	.4929	.4931	.4932	.4934	.4936	0	0	1	1	1	1	1	2	2
2.5	.4938	.4940	.4941	.4943	.4945	.4946	.4948	.4949	.4951	.4952	0	0	0	1	1	1	1	1	1
2.6	.4953	.4955	.4956	.4957	.4959	.4960	.4961	.4962	.4963	.4964	0	0	0	0	1	1	1	1	1
2.7	.4965	.4966	.4967	.4968	.4969	.4970	.4971	.4972	.4973	.4974	0	0	0	0	0	1	1	1	1
2.8	4974	4975	4976	.4977	4977	4978	4979	4979	4980	4981	0	0	0	0	0	0	0	0	1
2.9				.4983							0	0	0	0	0	0	0	0	1
3.0	4987	4987	4987	.4988	4988	4989	4989	4989	4990	4990	0	0	0	0	0	0	0	0	0
3.1				.4991							0	0	0	0	0	0	0	0	0
3.2				.4994							0	0	0	0	0	0	0	0	0
3.3				.4996								0	0	0	0	0	0	0	0
3.4	1			.4997							0	0	0	0	0	0	0	0	0
3.5				.4998							0	0	0	0	0	0	0	0	0
3.6				.4999							0	0	0	0	0	0	0	0	0
3.7				.4999							0	0	0	0	0	0	0	0	0
3.8				.4999							0	0	0	0	0	0	0	0	0
3.9	.5000	.5000	.5000	.5000	.5000	.5000	.5000	.5000	.5000	.5000	0	0	0	0	0	0	0	0	0