



Level 2 Mathematics and Statistics 2020

9.30 a.m. Thursday 19 November 2020

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.

Quadratic Equations

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 $x = \log_b y$

$$\log_b(xy) = \log_b(x) + \log_b(y)$$

$$\log_b\left(\frac{x}{y}\right) = \log_b(x) - \log_b(y)$$

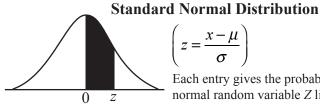
$$\log_b\left(x^n\right) = n\log_b x$$
If $y = e^x$ then $x = \log_e y$ (= ln y)

Calculus

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

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

L2-MATHF



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

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

Differences

														וווע	010	1100	_	_	
z	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
0.0	0000	0040	0080	.0120	0160	0199	0239	0279	0319	0359	4	8	12	16	20	24	28	32	36
0.1				.0517							4		12		20			32	
				.0910							4		12		19			31	
0.2				.1293							4		11	l	19		l	30	
											4		11		18			29	
0.4	.1334	.1391	.1028	.1664	.1/00	.1/30	.1//2	.1808	.1844	.18/9	4	/	11	14	18	22	23	29	32
0.5				.2019							3		10		17		l	27	
0.6				.2357							3		10	l	16		_	26	
0.7				.2673							3	6	9	1	15		!	24	
0.8				.2967							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	.3849	.3869	.3888	.3907	.3925	.3944	.3962	.3980	.3997	.4015	2	4	5	7	9	11	13	15	16
1.3	.4032	.4049	.4066	.4082	.4099	.4115	.4131	.4147	.4162	.4177	2	3	5	6	8	10	11	13	14
1.4	.4192	.4207	.4222	.4236	.4251	.4265	.4279	.4292	.4306	.4319	1	3	4	6	7	8	10	11	13
1.5	4332	4345	4357	.4370	4382	4394	4406	4418	4429	4441	1	2	4	5	6	7	8	10	11
1.6				.4484							1	2	3	4	5	6	7	8	9
1.7				.4582							1	2	3	3	4	5	6	7	8
1.8				.4664							1	1	2	3	4	4	5	6	
1.9				.4732							1	1	2	2	3	4	4	5	5
												-		_					
2.0				.4788							0	1	1	2	2	3	3	4	
2.1				.4834							0	1	1	2	2	2	3	3	4
2.2				.4871							0	1	1	1	2	2	2	3	
2.3				.4901							0	0	1	1	1	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				.4943							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	.4981	.4982	.4982	.4983	.4984	.4984	.4985	.4985	.4986	.4986	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	
3.2				4994							0	0	0	0	0	0	0	0	
3.3				.4996								0	0	0	0	0	0	0	
3.4				.4997							0	0	0	0	0	0	0	0	
2 5											0	0			0				
3.5				.4998							0	0	0	0	0	0	0	0	
3.6											0	0	0	0	0	0	0	0	
3.7				.4999							0	0	0	0	0	0	0	0	
3.8				.4999							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