

Score	Evaluator	Section III: Work out math questions. (6 questions; 8 points for each; 48 points in total.)

1. The first question $\int e^{2x} (\tan x + 1)^2 dx$.

2. The second question $A(1, 2, -1), B(2, 3, 0), C(3, 3, 2)$ text $\triangle ABC$ text text text text text.

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3. The third question $A = \begin{vmatrix} 0 & 1 & 2 & 3 \\ 1 & 2 & 3 & 0 \\ 2 & 3 & 0 & 1 \\ 3 & 0 & 1 & 2 \end{vmatrix}$ text.

4. The fourth question, text text $f = x_1^2 + 2x_1x_2 - 6x_1x_3 + 2x_2^2 - 12x_2x_3 + 9x_3^2$ text text $f = d_1y_1^2 + d_2y_2^2 + d_3y_3^2$.

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5. The fifth question text text text 0.2 text text, text text 100 text text.
(1) text text text text text text ξ text 10 text 30 text.
(2) text text text text text text ξ text 10 text 30 text.

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6. The sixth question $N(\mu, \sigma^2)$ text text 16 text, text text text 3160, text text 100. Text text $H_0 : \mu = 3140$ text text ($\alpha = 0.01$).

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Score	Evaluator	Section IV: Work out math proofs. (2 questions; 16 points in total.)

1. (9 points) The first question $\{x_n\}$ text $x_1 = \sqrt{2}$, $x_{n+1} = \sqrt{2 + x_n}$. Text text text, text text text.

2. (7 points) The second question A text B text, text A text \bar{B} text.

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Appendix Some data may be used in the exam

$\Phi_0(0.5) = 0.6915$	$\Phi_0(1) = 0.8413$	$\Phi_0(2) = 0.9773$	$\Phi_0(2.5) = 0.9938$
$t_{0.01}(8) = 3.355$	$t_{0.01}(9) = 3.250$	$t_{0.01}(15) = 2.947$	$t_{0.01}(16) = 2.921$
$\chi^2_{0.005}(8) = 22.0$	$\chi^2_{0.005}(9) = 23.6$	$\chi^2_{0.005}(15) = 32.8$	$\chi^2_{0.005}(16) = 34.3$
$\chi^2_{0.995}(8) = 1.34$	$\chi^2_{0.995}(9) = 1.73$	$\chi^2_{0.995}(15) = 4.60$	$\chi^2_{0.995}(16) = 5.14$

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