2022-2023 AUT

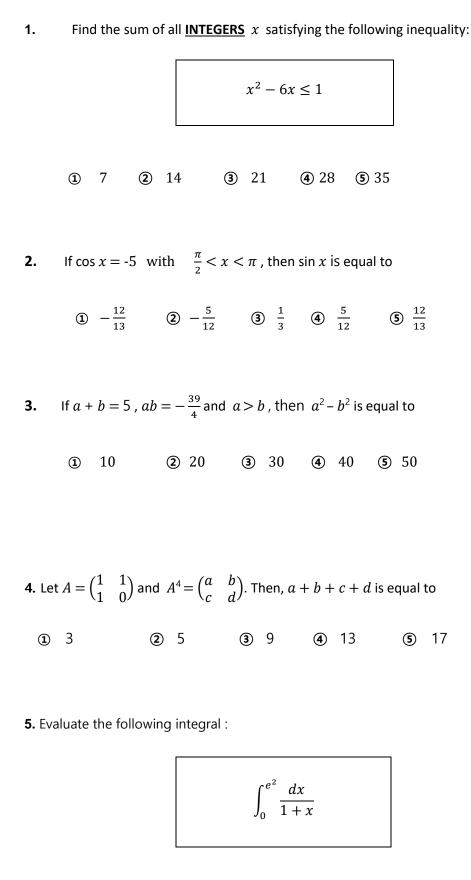
Admission Examination Sample

Mathematics



Test ID Number	
Full Name	
Major	

• These sample questions for your references. In real exam there will be 25 questions for 90 minutes.



(1)
$$\frac{1}{e}$$
 (2) $\frac{1}{2}$ (3) 2 (4) e (5) $\ln(e^2+1)$

6. Evaluate the following limit :

	$\lim_{x \to 0} \frac{2 \sin x}{x}$	<u>x</u>		
③ 1	④ −1	(3) 0		
7. If $f(x) = \frac{x^2 + ax + b}{x - 1}$ has a local minimum value of 11 at $x = 3$, then ab is equal to				
(3	5	④ 10	⑤ 15	
8. If $\sin \alpha = \frac{3}{5}$, then $\cos (2\alpha)$ is equal				
(3	$\frac{9}{25}$	(4) $-\frac{9}{25}$	(5) $\frac{2}{5}$	
	 ③ 1 as a local mir ④ (2α) is equal 	 ③ 1 ④ -1 ④ 3 5 (2α) is equal 	3 5 4 10	

- 9. Find the area of region bounded by the curves $y = x^2$ and y = 6 |x|.
 - (1) $\frac{20}{3}$ (2) 7 (3) $\frac{22}{3}$ (4) 11 (5) $\frac{44}{3}$

10. Find the **<u>POSITIVE</u>** real number k such that the equation

 $3x^4 - 4x^3 - 12x^2 + 5 - k = 0$

has THREE DISTINCT real roots.

1 5 **2** 4 **3** 3 **4** 2 **5** 1