

ENGLISH

2019 INTERNATIONAL STUDENT EXAM (OMÜ YÖS)



ONDOKUZ MAYIS UNIVERSITY INTERNATIONAL STUDENT EXAM May 11, 2019

NAME	
SURNAME	:
ID NUMBER	
SIGNATURE	: SEAT NUMBER:

IMPORTANT INFORMATION						
 This booklet includes test questions for international students who wish to study in certain Turkish universities. 	 Each question has only one correct answer. Multiple selections will be considered as incorrect. 					
The number of questions are as follows:	 The answers to the questions given in the booklet should be marked by pencil on the answer sheet provided with this booklet. Please 					
Mathematics40Basic Learning Skills40	use a pencil. Do not fold the answer sheet and do not write anything not required on it.					
 This is an "A" type booklet. Please mark the type of your booklet on the answer sheet as shown below, and make sure it has been confirmed by the exam supervisor. If you do not code the booklet type correctly on the answer sheet, your exam will be invalid. 	 will not be read by the optical reader. The candidate is responsible for the mistakes incurred by inappropriate markings. 7. Only correct answers will be calculated in this exam. You will not lose any points for incorrect answers. 					
3. You have 120 minutes to complete the exam.	 Further information about the examination rules are printed on the back cover of this booklet. 					



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MATHEMATICS

 1.
$$\left(0,2+\frac{4-0,4}{12}\right):0,02=?$$
 4. $3^{*}=2$

 A) 15
 B) 25
 C) 40
 D) 50
 F) 75

 A) 15
 B) 25
 C) 40
 D) 50
 F) 75

 A) 15
 B) 25
 C) 40
 D) 50
 F) 75

 A) $\frac{25}{9}$
 B) $\frac{9}{25}$
 C) $\frac{1}{75}$

 D) $\frac{1}{225}$
 E) $\frac{1}{400}$

 2. $a, b, c \in \mathbb{Z}^{+}$
 $a - b = 9$
 $b - c = 7$
 D) $\frac{1}{225}$
 E) $\frac{1}{400}$

 3. If $a = \frac{1}{4} - \frac{1}{5}$ then, what is $\frac{1}{16} - \frac{1}{10} + \frac{1}{25} - 1$
 F

 A) 76
 B) 98
 C) 112

 D) 125
 E) 144

 3. If $a = \frac{1}{4} - \frac{1}{5}$ then, what is $\frac{1}{16} - \frac{1}{10} + \frac{1}{25} - 1$
 I

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 I

 $b = (2 - 3 - 3)$
 E) $d > c > a > b$
 $b = (2 - 3) - 3 - 2$
 D) $c > a > 2 - 3 > 5$
 $b = (2 - 3) - 3 - 2$
 E) $d > c > a > 2 - 3 > 5$
 $b = (2 - 3) - 3 - 2$
 D) $c > 2 - 3 - 3 = 5$
 $b = (2 - 3) - 3 - 2$
 D) $(2 - 3 - 3) - 3 - 2 - 3 - 3 - 2 - 3 -$

A



Δ

12. Which one of the following is the solution set
of the inequality
$$\frac{|x-5|(x^2-4)|}{x^2-3x-4} < 0$$
?
A) $(-2,-1) \cup (2,4)$ B) $(-2,-1)$
C) $(-4,-2) \cup (1,2)$ D) $(-4,-2)$
E) $(2,5)$
13. $a, b \in \mathbb{Z}^+$
 $a!=132,b! \Rightarrow a+b=?$
A) 22 B) 23 C) 24 D) 25 E) 26
14. $P(n,r)$ is the number of possible
permutations of r objects from a set of n,
where $n \ge r$. $P(15,a) = 14^2 - 14 \Rightarrow a = ?$
A) 2 B) 3 C) 4 D) 5 E) 6
15. $\binom{n}{4} = 6\binom{n}{3} \Rightarrow n = ?$
A) 23 B) 24 C) 25 D) 26 E) 27
16. What is the last digit of 2019^{2059} ?
17. The remainder of the division of the
polynominal $P(x) = x^1 + ax^2 - 3x + b$ by
 $x^2 + x$ is $2x - 3$. What is $a-b$?
A) -4 B) -3 C) -2 D) -1 E) 0
18. Let $f : \mathbb{R} \to \mathbb{R}, f(x+2+3^r) = x+2$.
Which one of the following is the function
 $f^{-1}(x)$?
A) 23 B) 24 C) 25 D) 26 E) 27

A

Mathematics

Mathematics

19. Let
$$f(x) = \begin{cases} -2x+5, & x \le 1 \\ x-3, & x > 1 \end{cases}$$
.

How many different integers x exist satisfying f(x) < 3?

Α



The above figure is the graph of the function

$$f(x) = \log_a(x+b)$$
. $f(\frac{3}{2}) = ?$
A) -2 B) -1 C) 0 D) 1 E) 2

21. How many integers exist in the domain of the

function
$$f(x) = \sqrt{\log \frac{2-x}{x-6}}$$
?
A) 5 B) 4 C) 3 D) 2 E) 1

22. If
$$0 < x < \frac{\pi}{2}$$
, $\tan x = \frac{5}{12}$ then,
 $\frac{\sin^3 x - \cos^3 x}{1 + \frac{1}{2} \sin 2x} = ?$
A) $-\frac{17}{13}$ B) $-\frac{7}{13}$ C) 0
D) $\frac{7}{13}$ E) $\frac{17}{13}$

23. What is the solution set of $\sqrt{3} \sin x - \cos x = \sqrt{3}$?

A)
$$\begin{cases} x \in \mathbb{R} \mid x = \frac{\pi}{3} + 2k\pi, k \in \mathbb{R} \end{cases}$$

B)
$$\begin{cases} x \in \mathbb{R} \mid x = \frac{\pi}{2} + 2k\pi, k \in \mathbb{R} \end{cases}$$

C)
$$\begin{cases} x \in \mathbb{R} \mid x = \frac{\pi}{3} + 2k\pi, \\ x = \frac{\pi}{2} + 2k\pi, k \in \mathbb{R} \end{cases}$$

D)
$$\begin{cases} x \in \mathbb{R} \mid x = -\frac{7\pi}{6} + 2k\pi, k \in \mathbb{R} \end{cases}$$

E)
$$\begin{cases} x \in \mathbb{R} \mid x = \frac{\pi}{2} + 2k\pi, \\ x = -\frac{7\pi}{6} + 2k\pi, k \in \mathbb{R} \end{cases}$$



and on

A)
$$x^{2} + f^{2}(x)$$

B) $\frac{f(x)}{x^{2}}$
C) $3x^{4} - f(x)$
D) $x \cdot f(x)$
E) $x^{2} + f(x)$

30. If
$$f'(x) = \begin{cases} x^2, & x < 2 \\ x, & x \ge 2 \end{cases}$$
 then, what is

$$\int_{-1}^{3} f(2x) dx ?$$
A) $\frac{32}{3}$
B) $\frac{35}{6}$
C) $\frac{16}{3}$
D) $\frac{29}{6}$
E) 12
31. What is the area between the curves $y = |x|$
and $y = -x^2 + 2$?
A) $\frac{2}{3}$
B) $\frac{5}{3}$
C) $\frac{7}{3}$
D) $\frac{8}{3}$
E) $\frac{11}{3}$
32. If $\int_{-1}^{2^2} 2x dx = 3$ and $\int_{0}^{4} (2b + a) dx = 8$ then,
what is a ?
A) 0
B) $\frac{1}{4}$
C) $\frac{5}{8}$
D) $\frac{7}{8}$
E) $\frac{3}{2}$
B) $\frac{3}{2}$
C) $\frac{7}{8}$
B) $\frac{3}{2}$
C) $\frac{7}{8}$
C) $\frac{3}{2}$
C) $\frac{7}{8}$
C) $\frac{3}{2}$
C)

A







[AB] and [CD] are diameters and 6 units. What is the sum of the shaded areas?

Α

A)
$$\frac{9\sqrt{3}}{4}$$
 B) $3\sqrt{3}$ C) $3\sqrt{6}$
D) 6 E) $6\sqrt{3}$

40. Which one the following is true for
two lines determined by the equation
$$x^2 - 4y^2 - 16x + 64 = 0$$
?

A) Intersect orthogonally.

- **B**) Intersect on the origin.
- C) Intersect in the first quadrant.

D) Intersect on the x axis.

E) Intersect on the y axis.

Mathematics Test is completed.

BASIC LEARNING SKILLS

4.

Δ



A)
$$-4$$
 B) $-\frac{16}{13}$ C) 1
D) $\frac{16}{13}$ E) 4

2.
$$2,4 - 3,1 - ? - 3,0 - 2,6 - 2,9$$

Which one of the following should be replaced in the question mark (?)?

D) 3,7

B) 2,7

E) 3,8

?

C) 2,8 5.

Which one of the following should be

replaced in the question mark (?)?



A) 2,5

•00

3.





000000

D)



Which is the odd one out?





Which one of the following figures is the closed form of the above figure?



2019 OMÜ YÖS



?



Which one of the following should be replaced in the question mark (?)?

A) 249 **B)** 221 **C)** 201

D) 166 **E)** 151



Which one of the following should be replaced in the question mark (?)?











Which one of the following should b

Which one of the following should be replaced in the question mark (?)?





Α

12.

13.





7





Which one of the following should be replaced in the question mark (?)?

6

46 9



D) 14

E) 18

(2)



 (\mathbf{x})

(12)6 8 24) (18) (8)4 (20)(z)4 t (8)4 6 (16) y (6)(3)

(1)

 $\mathbf{x} + \mathbf{y} + \mathbf{z} + \mathbf{t} = ?$







Basic Learning Skills



E) 258



21	17	36	48	10	25	?
3	8	9	12	1	?	12

Α

Which one of the following should be replaced in the question mark (?)?



2 **32.** 0 2 0 X V

Which one of the following should replace (x,y)?

A) (2,0) **B)** (1,0)





The sum of the opposite sides of a dice is 7. Dice is rolled and placed on the black arrow. Which number appears above?

A) 1 **B**) 2 **C**) 3 **D**) 4 **E)** 5



D) 257

35. ? Π I III IV

Which one of the following should be replaced in the question mark (?)?













38.	1	6	5
	6	2	9
	4	7	8

Α

1	8	1	4	7
3	5	4	?	9
6	8	3	6	8

Which one of the following should be replaced in the question mark (?)?

7

2

9

A) 1 **B)** 3 **C)** 5 **D)** 6 **E)** 7

39. $A_2B_3C_4 - C_2B_9A_4 - C_2D_5A_4 - A_2D_{11}C_4 - ?$

Which one of the following should be replaced in the question mark (?)?

A)
$$A_2 D_{25} C_4$$
 B) $C_4 E_{17} A_2$ **C)** $A_4 E_6 C_2$
D) $A_2 E_{17} C_4$ **E)** $A_2 E_6 C_4$

The above regular pentagon is rotated 288[°] clockwise. Which one of the following is obtained?



37.

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Α

EXAMINATION RULES

1. Following materials are prohibited in exam room: Any communication equipments e.g. pagers, walkie-talkies, PDA's, watches with any other functions, weapons, notebooks, books, dictionaries, any electronic device with dictionary function, calculators, calculation charts, compasses, goniometers, rulers and etc. If any candidate enters the exam room with the prohibited materials, his/ her name will be recorded and their examinations will be considered invalid.

2. Duration of the exam is **120** minutes. Candidates are allowed to take the exam if they are not late for more then **30** minutes. Candidates are not allowed to leave the exam room in the first **40** minutes and the last **5** minutes of the examination. Candidates who completed the exam or left the examination room will not be allowed to reenter the examination room. If you complete the exam before the end of the duration you can leave the room after submitting your question booklet and answer sheet. When the end of the examination is announced you must remain seated and may not leave the examination room until all papers are collected by the invigilators.

3. Communicating with the invigilators during the examination is prohibited. Similarly, it is prohibited for the staff to talk to candidates privately. Candidates are not allowed to exchange pencils, erasers, papers etc. during the exam.

4. The exam of any candidate who cheats, attemps to cheat or assists cheating will be considered invalid and his/her identity will be recorded. Invigilators do not have to warn the students about cheating. The candidate is responsible for his/her actions. Answers of the candidates will be examined electronically. If any suspicious case is detected regarding individual or collaborate cheating, the exams of all candidates who participate in this action will be considered invalid. If invigilators report any case of misconduct in the application of the exam or collaborate cheating, OMÜ-YÖS Coordinating Office may decide to consider all of the candidates' exams invalid for that room.

5. All candidates must obey the rules in the exam room. If necessary, your seat may be changed by inviligators. Obeying the rules is of utmost importance for validation of the exam. Identity of any candidate who engages in misconduct and does not heed the invigilator's warning to discontinue the behavior, will be recorded and his/her ²⁰¹⁹ OMÜ YÖS

examination will be considered invalid.

6. You must fill all the required fields on the answer sheet. Only pencils should be used for marking and writing on the answer sheet. Pens or ball point pens shoul not be used. All the answers should be marked on the answer sheet. Answers marked on the question booklet will be considered invalid.

7. Please check your question booklet for missing pages or typos after receiving it. If there are any missing pages or typos on your booklet, please immediately request for the change of the booklet from the head invigilator. You should also check if the booklet type written on the cover page is the same as the booklet type written on every page of the booklet. If you find any difference, please request a new booklet from the head invigilator. If you realise any difference about booklet types after you start the examination, request a new booklet of the same type you have answered. Please mark your booklet type on the "Question Booklet Type" area on the answer sheet. Booklet type you have marked will be checked by the invigilators and initialed with a pen. If the related area is not initialed, your answer sheet will not be evaluated. If there is difference between the booklet types that you have marked and the invigilator has marked, evaluation will be based on the one that is marked by invigilators.

8. Please write your name, surname and candidate number on the question booklet before starting to answer the questions. All the question booklets and answer sheets will be collected and examined at the end of the examination. In case of missing pages, examination of the related candidate will be considered invalid.

9. You can use the spaces on the question booklet for calculation.

10. Smoking (cigarettes, pipes, cigars etc.) is not allowed during the examination for both candidates and the staff.

11. Writing the questions and/or the answers and taking it out is strictly prohibited.

12. Do not forget to submit your question booklet and answer sheet before leaving the exam room.