

**ENGLISH** 

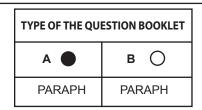
# **2020** INTERNATIONAL STUDENT EXAM (OMÜ YÖS)



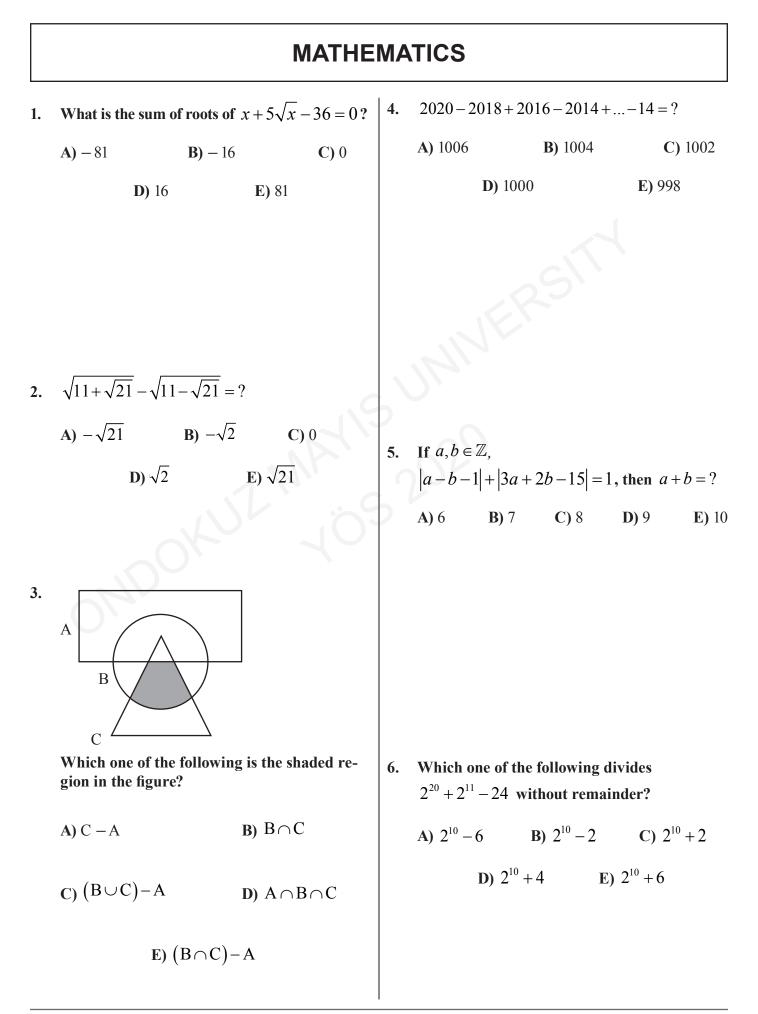
## ONDOKUZ MAYIS UNIVERSITY INTERNATIONAL STUDENT EXAM July 18, 2020

NAME	:
SURNAME	:
ID NUMBER	:
SIGNATURE	: SEAT NUMBER:

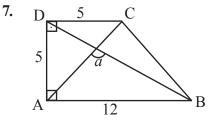
IMPORTANT INFORMATION								
<ol> <li>This booklet includes test questions for international students who wish to study in certain Turkish universities.</li> </ol>		<ol> <li>Each question has only one correct answer. Multiple selections will be considered as incorrect.</li> </ol>						
The number of questions are as follows:		<ol> <li>The answers to the questions given in the booklet should be marked by pencil on the answer sheet provided with this booklet. Please</li> </ol>						
Mathematics	40	use a pencil. Do not fold the answer sheet and do						
Basic Learning Skills	40	not write anything not required on it.						
This is an " <b>A</b> " 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. <b>If you do not code the booklet type correctly</b> <b>on the answer sheet, your exam will be</b>		<ul> <li>5. Inappropriate markings on the answer shee will not be read by the optical reader. The candidate is responsible for the mistakes incurred by inappropriate markings.</li> <li>7. Only correct answers will be calculated in thi exam. You will not lose any points for incorrect</li> </ul>						
<ul><li>invalid.</li><li>3. You have 120 minutes to complete the example.</li></ul>	am.	<ul><li>answers.</li><li>8. Further information about the examination rules are printed on the back cover of this booklet.</li></ul>						



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Δ



ABCD right trapezoid, |DC| = |AD| = 5 units, |AB| = 12 units sina = ?

A) 
$$\frac{5}{13}$$
 B)  $\frac{7\sqrt{2}}{13}$  C)  $\frac{17\sqrt{2}}{26}$   
D)  $\frac{12}{13}$  E) 1

10. If 
$$s(B'-A') = 4$$
  
 $s(B-A) = 6$   
 $s(A) = 9$ 

Δ

then what is the number of subsets of B with at most 2 elements?

**D)** 66 **E)** 67

11. If 
$$a = 2 + \sqrt{15}$$
, then what is  $\sqrt[3]{\sqrt{15} + \frac{196}{54}}$  in

terms of a?

A) 
$$\frac{a+1}{6}$$
 B)  $\frac{a+1}{3}$  C)  $\frac{a}{3}$   
D)  $\frac{a}{6}$  E)  $\frac{a}{2}$ 

- 8. Let  $x^2 < x$ , xy > y. Which one of the following is always true?
  - A) y x > 0B) 2x + y > 0C) 2xy < 0D)  $x^2y > 0$ E) 3x - 5y < 0

9. If  $(x-3)^{|x+5|-8} = 1$ , then what is the sum of possible values of x?

**A**) -9 **B**) -6 **C**) -4

**E)** 6

**D**) 4

12. 3 of 10 elective courses are being delivered at the same time. How many possibilities are there to take 5 courses?

**D**) 126 **E**) 161

#### Mathematics

13. If 
$$\binom{10}{2} + \binom{10}{4} + \dots + \binom{10}{10} = x$$
  
 $\binom{10}{3} + \binom{10}{5} + \dots + \binom{10}{9} = y$ ,  
then  $x + y - 1 = ?$   
A) 1013 B) 1012 C) 1011  
D) 1010 E) 1009  
14. Let  $x, y, z$  be prime digits. What is the remainder of the smallest negative number generated by these digits divided by 11?  
A) 0 B) 1 C) 2 D) 3 E) 4  
15. If  $m \in \mathbb{Z}$ , then what is the the leading coefficient of the polynomial  $P(x) = 4x^{\frac{10}{10}} - 6x^{22-2n} + 4x^{13} + 5x^{10} - 4?$   
A) 3 B) 2 C) -2  
D) -3 E) -4  
16. What is the multiplication of real  $x$ 's satisfying  $x^3 + 5|x| - 14 = 0$ ?  
A) 4 9 B) -4 C) 0  
D) 49 E) 196  
17. If  $f : \mathbb{R} \to \mathbb{R}$ ,  $f(x) = 5^{*+3}$ , then  $f(a + b - 1) = ?$   
A) 25  $f(a + b)$  B) 5  $f(a + b)$   
C)  $f(a + b)$  D)  $\frac{f(a + b)}{5}$   
E)  $\frac{f(a + b)}{25}$   
18. Let  $(a_n)$  be a geometric sequence.  
If  $\frac{a_5}{a_3} = 8$ , then  $\frac{a_{12}}{a_3} = ?$   
A) 2 B) 4 C) 6 D) 8 E) 16

A

- 19. Let  $(a_n)$  be an arithmetic sequence. If  $a_7 = x$ , then  $a_5 + a_9 = ?$ 
  - **A)** *x* **B)** 2*x* **C)** 3*x*

D) 
$$\frac{x}{2}$$
 E)  $\frac{x}{4}$ 

- 20. If today is Monday, then what day is it 115 days before?
  - A) Monday
  - **B)** Tuesday
  - C) Wednesday
  - **D)** Thursday
  - E) Friday

- ONDOKUZ MAYIS UNIVERSITY YÖS
- 22. Which one of the following is the solution set of real x satisfying  $\log_{\frac{1}{7}}(12-x) \le \log_{\frac{1}{7}}(x^2)$ ? A)  $(-\infty,3)-\{0\}$  B)  $(-\infty,-4)$

C) 
$$[-4,3]-\{0\}$$
 D)  $[3,\infty]$ 

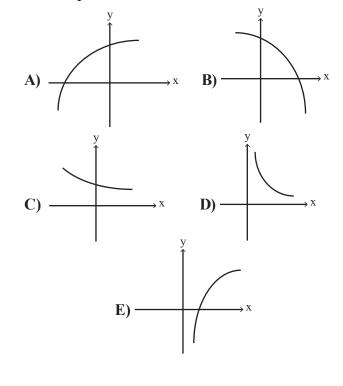
**23.** If  $x, y \in \mathbb{Z}$  $23! = 2^x 5^y k$ 

Δ

and k is an even number, then what is the maximum of x + y?

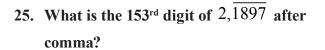
A) 19 B) 20 C) 21 D) 22 E) 23

24. Which one of the following may be the graph of an expoential function?



**21.** If  $\log_x 81 = 8$  and  $\log_3 x = y$ , then xy = ?

A) 
$$\frac{1}{2}$$
 B)  $\frac{\sqrt{2}}{2}$  C)  $\frac{\sqrt{3}}{2}$   
D)  $\sqrt{3}$  E)  $\sqrt{5}$ 



A) 1 B) 2 C) 7 D) 8 E) 9

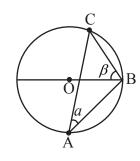
28. If 
$$x^2 + x + 1 = 0$$
, then  $x^{2013} + x^{2023} = ?$   
A)  $x - 1$ 
B)  $x + 1$ 
C)  $x^2 + 1$ 
D)  $x^2 - 1$ 
E)  $x^2 + x + 1$ 

|x-y| = ?

**B**) √31

E)  $\sqrt{61}$ 

**D**)  $\sqrt{51}$ 



26.

 $m(\widehat{OBC}) = \beta$ ,  $m(\widehat{CAB}) = a$  for the circle with center **O**.

If  $\sin a = x$ , then  $\cos\left(\frac{\pi}{2} - 2\beta\right) = ?$ 

A) 
$$\frac{\sqrt{1-x^2}}{x}$$
 B)  $\sqrt{1-x^2}$   
C) x D)  $2x\sqrt{1-x^2}$ 

**E)**  $2x^2$ 

27. The constant term of the polynomial  $P(x) = (x^{2} + x - 7)Q(x+1) + 2x + 1 \text{ is } -20.$ What is the sum of coefficients of the polynomial Q(x)? A) 0 B) 1 C) 2 D) 3 E) 4

30. If 
$$\frac{3}{4^x + 2^x + 1} = 2^x - 1$$
, then  $x = ?$   
A)  $\frac{2}{3}$ 
B)  $\frac{5}{6}$ 
C)  $\frac{4}{3}$ 
D)  $\frac{3}{2}$ 
E)  $\frac{5}{2}$ 

C)  $\sqrt{41}$ 

Α

29.

 $\frac{1}{x}$ 

**A**) √21

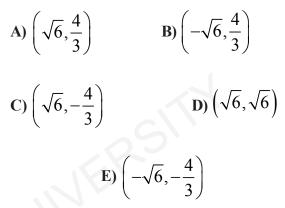
x + y = 1

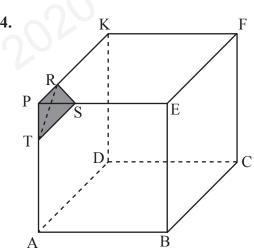
31. 
$$f(x) = 2(x-1)$$
  
 $\Rightarrow (fof 0...of)(x) = ?$   
A)  $2^{50}(x-1) - 2$  B)  $2^{50}(x-1)$   
C)  $2^{50}(x-2) + 2$  D)  $2^{50}(x-2) - 2$   
E)  $2^{51}(x-1)$   
32. If  $(foh)(x) = 4h(x) - 2$   
 $(hof)(x) = 5f(x) + 3$ ,  
then  $f(0) + (foh)(-2) = ?$   
A)  $-32$  B)  $-16$  C)  $0$   
D)  $16$  E)  $32$ 

33. If lines  $ax + \sqrt{3}y - 4 = 0$  $2x - \sqrt{2}y + b\sqrt{6} = 0$ 

Α

are paralel, then which one of the following may be (a,b)?





If 3|PT| = 2|TA|, 3|PR| = 2|RK|, 3|PS| = 2|SE|for the cube in figure, then what is the ratio of the pyramid (T,PRS) to the volume of the cube?

A) 
$$\frac{4}{375}$$
 B)  $\frac{8}{375}$  C)  $\frac{4}{25}$   
D)  $\frac{8}{25}$  E)  $\frac{4}{5}$ 

## 35. A B 600 K C 5 D

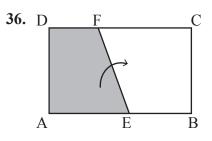
If |AB| = 2 units, |CD| = 5 units,  $m(\widehat{AKB}) = 60^{\circ}$  for the circle, then what is the area of sum of shaded regions? Δ

A) 
$$13\pi - \frac{\sqrt{3}}{4}$$

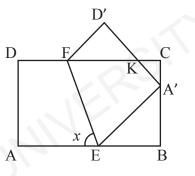
**B**) 
$$\frac{13\pi}{2} - \frac{\sqrt{3}}{4}$$

C) 
$$\frac{13\pi}{3} - \frac{21\sqrt{3}}{4}$$
 D)  $\frac{13\pi}{3} - \frac{2}{4}$ 

E) 
$$\frac{13\pi}{6} - \frac{25\sqrt{3}}{4}$$

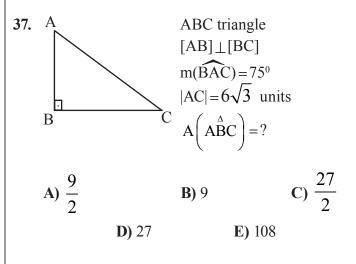


In the above rectangle ABCD the region AEFD is folded through [EF] and below figure is obtained.

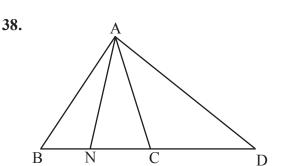


Which one of the following is sufficient alone to find the angle *x*?

- I.  $m(\widehat{BA'E})$ II.  $m(\widehat{D'FK})$ III.  $m(\widehat{D'KC})$
- A) Only I
  B) Only II
  C) Only III
  D) II and III
  E) All of them



**Mathematics** 



ABC triangle [AN] internal bisector [AD] exterior bisector  $|AN|=n_a$  $|AD|=n_a'$ Which one of the following relation exists for lengths of bisectors?

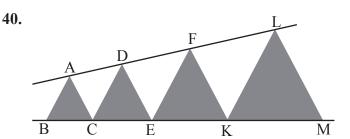
A) 
$$\frac{n_a}{n_a'} = \frac{|AB|}{|AC|}$$

**B)** 
$$(n_a)^2 + (n_a')^2 = |ND|^2$$

C) 
$$(n_a + n_a')^2 = |BD| - |ND|$$

**D**) 
$$n_a = n_a'$$

E) 
$$(n_a)^2 + (n_a')^2 = [|CD| + |BN|].[|CD| + |NC|]$$

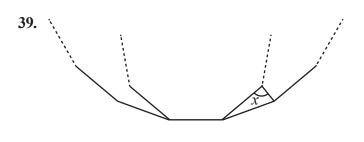


Α

In the shaded isosceles triangles A, D, F, L and B, C, E, K, M are linear.

|BC| = 1 unit|CE| = 2 units|EK| = 4 units $|KM| = 16 \text{ units.} \frac{|AF|}{|AL|} = ?$  $A) \frac{1}{29} B) \frac{2}{29} C) \frac{3}{29}$  $D) \frac{8}{29} E) \frac{9}{29}$ 

Mathematics Test is completed.



In the above figure, a regular octadecagon (outside) and a regular nonagon is given.

*x* = ?

**A)** 70° **B)** 75°

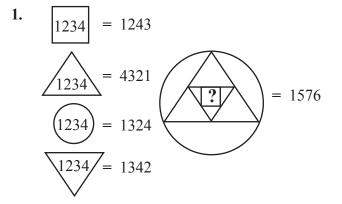
**D)** 85<sup>0</sup>

**C)** 80<sup>0</sup>

**E)** 90<sup>0</sup>

## **BASIC LEARNING SKILLS**

 $\Delta$ 



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

 A) 1567
 B) 5167
 C) 6175

E) 1756

**D)** 6571

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

**A)** 11 **B)** 12 **C)** 13 **D)** 14 **E)** 15

- **3.** In a coach, 5 people got off at consecutive stations.
  - Ahmet got off after Veli, before Ali.
  - Anıl got off lastly.
  - Veli and Mehmet didn't get off at consecutive stations.

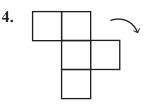
### Who may got off at first sitation?

### A) Ali

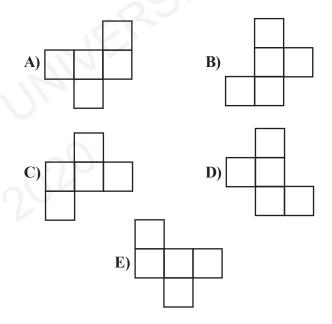
2.

B) Veli

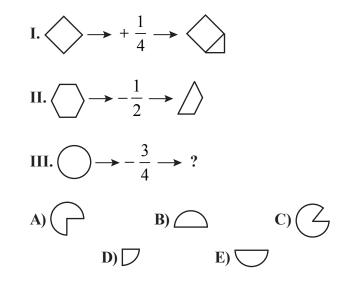
**D)** Mehmet **E)** Ahmet



Which one of the following is obtained if the above figure is rotated at an angle of 270° in the direction of arrow?

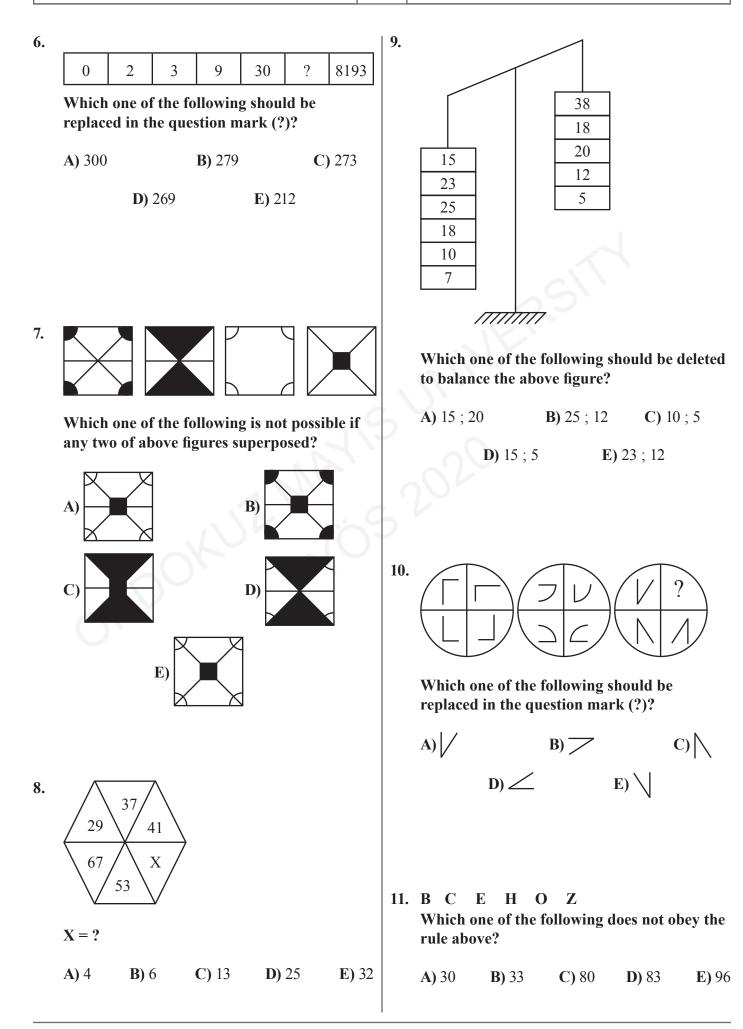


5. According to the relation below what should be replaced in the question mark (?)?

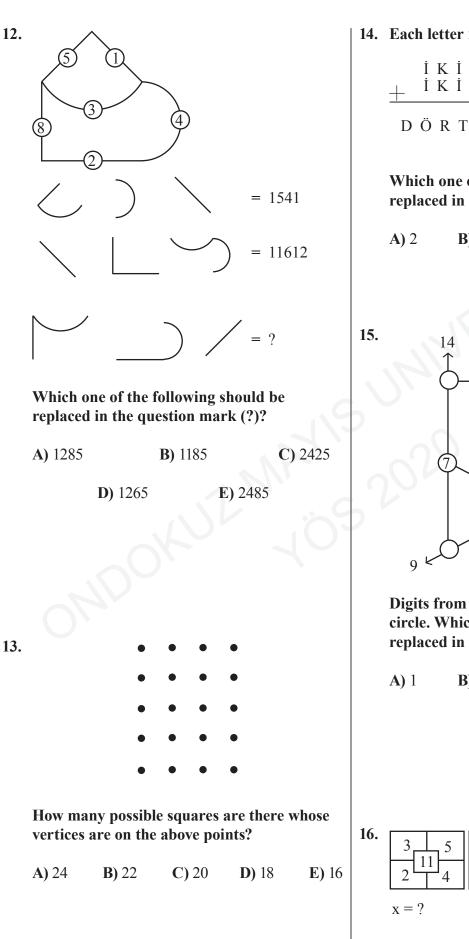


C) Anıl

**Basic Learning Skills** 



Α

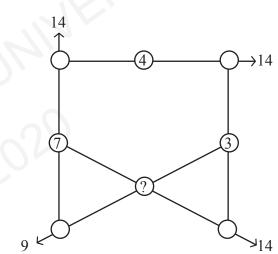


14. Each letter represents a different digit.

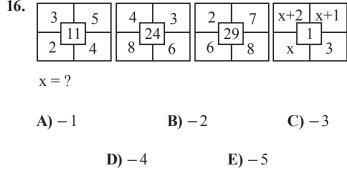
Α

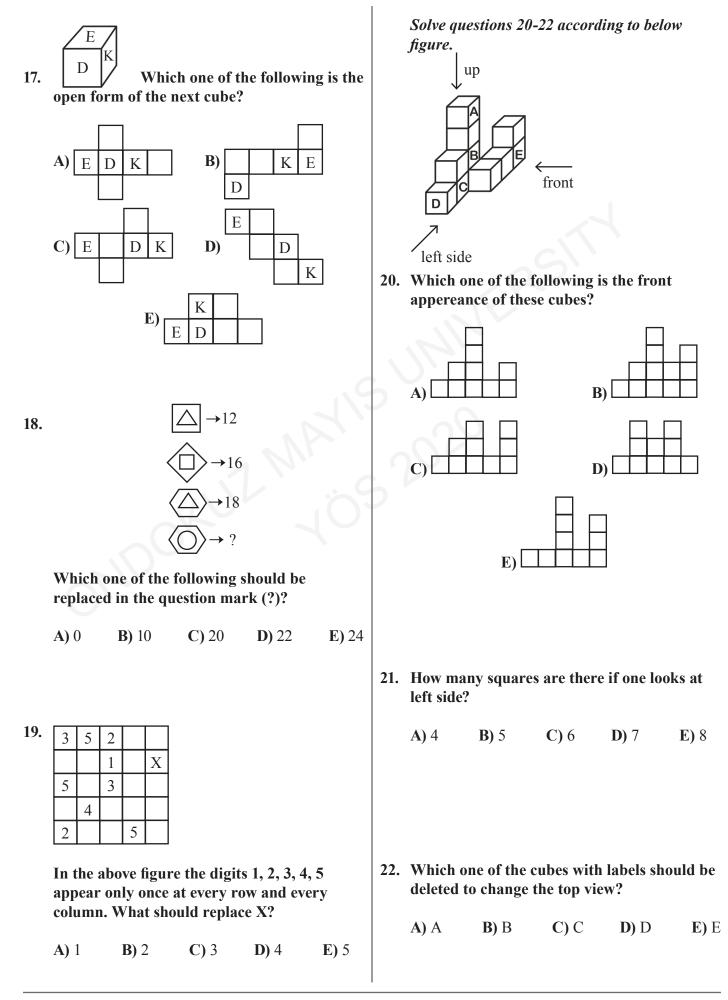
$$\underbrace{\stackrel{i \ K \ i}{-1 \ K \ i}}_{D \ O \ R \ T} \underbrace{\stackrel{D \ O \ R \ T}{-1 \ K \ D \ O \ R \ T}}_{T \ K \ \Box \bigtriangleup} \square + \bigtriangleup = ?$$

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



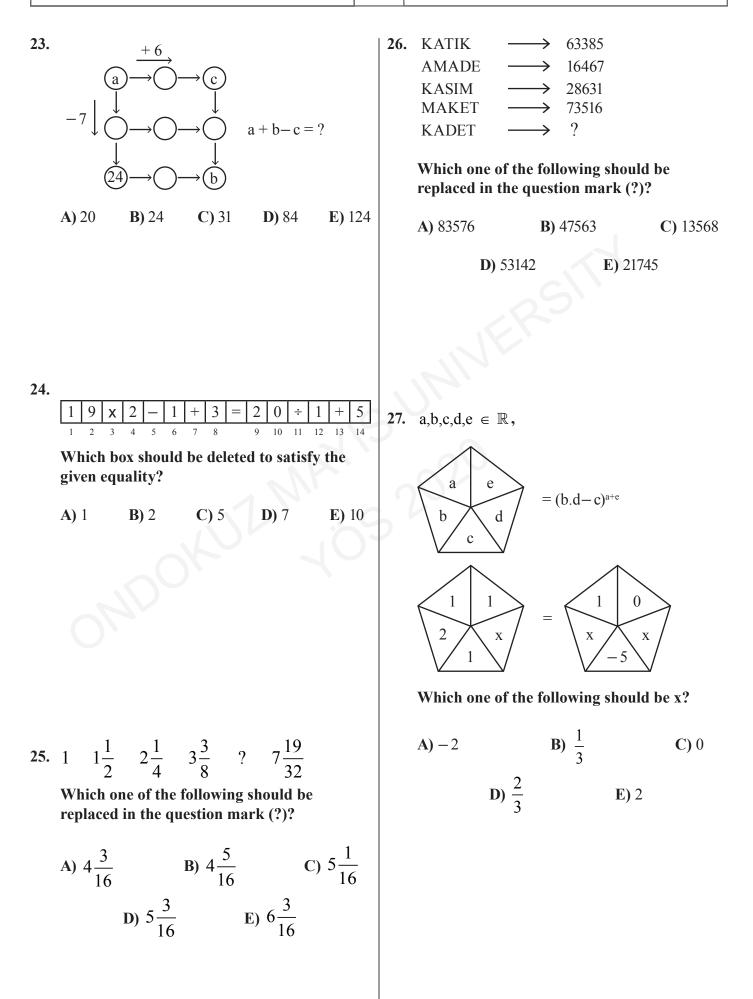
Digits from 1 to 8 are used once in each circle. Which one of the following should be replaced in the question mark (?)?





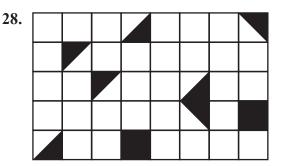
Α





Α

15



What percentage of the above figure is shaded?

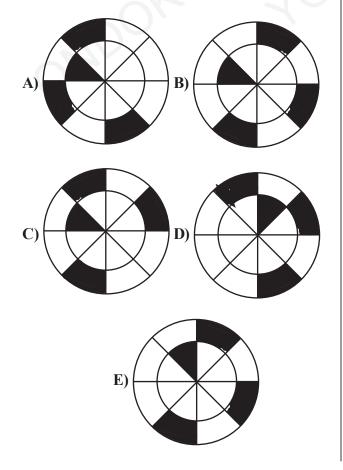
A) 12,5 B) 13,25 C) 13,75

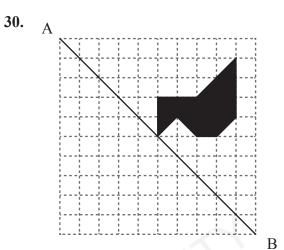
**D**) 14,5 **E**) 15



29.

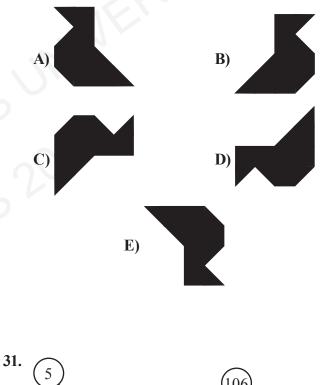
Which one of the following is obtained if the given figure is rotated at angle of 225° in the direction of arrow?

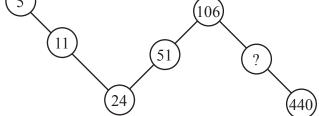




Α

Which one of the following is symmetric of the shaded region with respect to line AB?

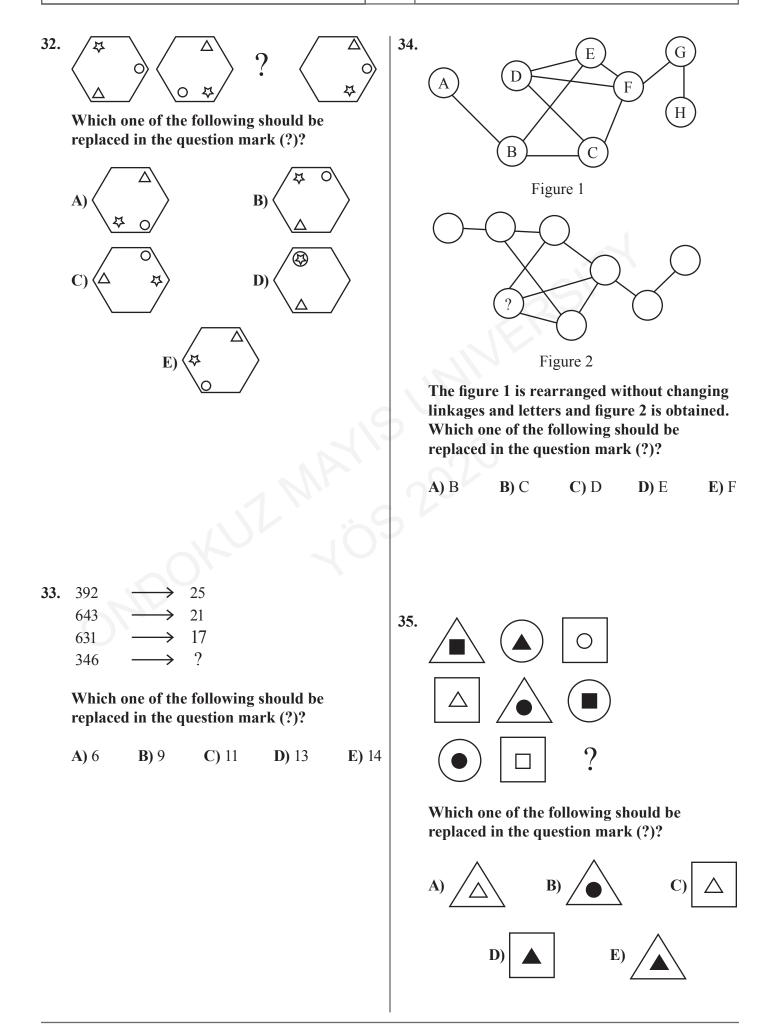




Which one of the following should be replaced in the question mark (?)?

**D)** 217 **E)** 301

#### **Basic Learning Skills**

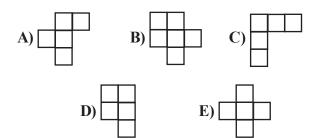


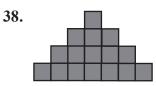
Δ

17

36.		

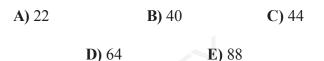
Which one of the following figures is not contained in the above figure?





Α

If the area of each square is 4 unit square, then how many units is the circumference of the figure?



**39.** Every symbol represents a nonzero number.

$$3\Box = 4 \bullet = 8 \bigtriangleup = \blacksquare \text{ ise}$$

$$\bullet - 2 \bigtriangleup + 2 \blacksquare$$

$$(12.\Box. \bullet) : \blacksquare = ?$$
A) 0 B) 1 C) 2 D) \blacksquare E) 2 \blacksquare

37.	Ι		II			III		
	4 7	5 3	2	6	5	Х	9	
	11		5			11		
	12		8			Y		
	9		9			Ζ		

A) 
$$X = 7$$
B)  $X = 15$ C)  $X = 6$  $Y = 6$  $Y = 5$  $Y = 15$  $Z = 14$  $Z = 4$  $Z = 14$ 

**D)** X = 6 Y = 8 Z = 4 **E)** X = 7 Y = 8Z = 15

40. 
$$\Box - \Delta = O$$
$$O - \Box = \Delta + \dot{O}$$
$$\dot{O} : O = \Delta$$

Each symbol represents a nonzero number.  $\bigcirc = ?$ 

**A**) 
$$-2$$
 **B**)  $-1$  **C**)  $0$ 

**D**) 1 **E**) 2

ONDORUZ NAYS UNIVERSITY



**2020** INTERNATIONAL STUDENT EXAM (OMÜ YÖS)



### **EXAMINATION RULES**

**1.** Following materials are prohibited in exam room: **Mobile phones** and 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

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.

Samsun, Turkey

# OMU YOS 2022/2023

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## **TO BE HELD IN NIGERIA**

#### ANNOUNCEMENT! ANNOUNCEMENT! ANNOUNCEMENT!



We are delighted to tell Nigerians OMU YOS is to be held in Nigeria this coming year..



OMÜ-YÖS was first held on May 27, 2012, in 16 countries, and 21 exam centers, in Turkish and English and was attended by 709 candidates. There has been a significant increase in the number of countries and centers where the exam is held and the number of exam languages and attendee students. The exam of 2016 was held in 18 countries, 28 exam centers, and 6 languages (Turkish, English, Russian, Arabic, French, and German) in total. The preliminary works for OMÜ-YÖS 2017 to be conducted in 3 continents and various countries have started.

## A.S.M CONSULTANCY IS TO ORGANIZE OMU YOS IN NIGERIA.

#### ALONG WITH OMU UZEM, YOS IS PLANNED TO BE ORGANIZED IN KANO NIGERIA, NEXT YEAR IN MAY..

The number of universities accepting OMÜ-YÖS (Entrance Examination for International Students) is growing each passing day. OMÜ-YÖS is taken by international students wishing to study at Ondokuz Mayıs University, and the exam's result is accepted by 72 states, 47 private universities, and 119 universities in total. This exam is carried out under the coordinatorship of OMU International Relations Office jointly with OMU Distance Education Center (UZEM). The number of universities accepting OMÜ-YÖS (Entrance Examination for International Students) is growing each passing day. OMÜ-YÖS is taken by international students wishing to study at Ondokuz Mayıs University,



#### PRIVATE UNIVERSITIES

APPLY TO OMU YOS EXAM TO GET ADMISSION TO MORE THAN 90 UNIVERSITIES IN TURKEY. APPLY TO OMU YOS EXAM TO GET ADMISSION TO MORE THAN 90 UNIVERSITIES IN TURKEY.APPLY TO OMU YOS EXAM TO GET ADMISSION TO MORE THAN 90 UNIVERSITIES IN TURKEY.APPLY TO OMU YOS EXAM TO GET ADMISSION TO MORE THAN 90 UNIVERSITIES IN TURKEY.APPLY TO OMU YOS EXAM TO GET ADMISSION TO MORE THAN 90 UNIVERSITIES IN TURKEY.

A.S.M Consultancy is to organize the YOS exam (JAMB) in Nigeria next year. The exam takes place during May, successful students will be admitted to their university of choice. There are more than 80 public and 50 private universities that accept the OMU YOS exam. We need 100 candidates in order to bring the exam to Nigeria. Apply here to actualize your dream of studying abroad.