Round **Theo**

Group **α**

язык / language	**English**

Evaluation criteria for problem № α-1
of jury member ELENA VCHKOVA BERGOVSKA (MK)
country

№	Abbreviation (if used in table)	Explanations of gradating sub-points	N of points
1		CORRECT DISTANCE. IF THE STUDENT DIDN'T USE THE SIMILLARITY OF TRIANGLES BUT HAD CALCULATED THE DISTANCE ONE POINT IS GIVEN	1
2		IDEA OF HILL SPHERE OR ANY OTHER LOGICAL IDEA WHY THE OBJECT CANNOT BE SATTELITE ON MARS (EX. FORCE OF GRAVITY, PERIODS ETC.)	1
3		DISTANCE TO THE POSITION OF LAGRANGE POINT. 1 POINT IS GIVEN IF THEY HAVEN'T CALCULATETED CORRECTLY, OR HAVE SAME MISTAKE IN THE FORMULA.	2 max
4		CONCLUSION A>1 OR ANY OTHER METOD OF COMPARATION BETWEEN QUATITIES LIKE FORCE, ACCELERATIONS, PERIODS ETC	1
5		CONCLUSION: WRITTEN CORRECT CONCLUSION 1p, NOT CORRECT 0p. NO PARTAL CONCLUSIONS WERE ACEPPTED	1
6		A FIGURE THAT IS NEEDED TO ACCOMPANY THE SOLUTION. IF THE FIGURE DON'T INCLUDE THE SIMILLAR TRIANGLES STUDENT WILL RECIVE ONLY 1p	2 max
7		IF WRONG ISSUE ABOUT POSSIBILITY, BUT CALCULATED THE HYPOTHETICAL PERIOD STUDENT WILL RECIVE 1p BUT IT CAN NOT MAKE MAX POINT.	0
		Equivalent correct parts of other ways of solution	8
		Extra conclusions or correct additions (add. to 8 pt)	0

8

Jury member signature _____

Evaluation criteria for problem № α-1
of jury member Kamelesh Chowdhury (IN)
country

№	Abbreviation (if used in table)	Explanations of gradating sub-points	N of points	
1.	1.1.	Correct distance from Mars using either similar triangles or angular diameters.	1	
2.	1.2.	Idea to compare this distance with the size of the Hill Sphere	1	
3.	1.3.	Distance to the position of the Lagrange point	1	
4.	1.4	Conclusion $A > \Lambda$	1	
5.	1.5	Conclusion << the situation is impossible)	1	
6.	1.6	A figure that is needed to accompany the solution	2	
7	1.7.	Calculation of orbit period of the satellite	1	
		Equivalent correct parts of other ways of solution		8
		Extra conclusions or correct additions (add. to 8 pt)		

Jury member signature _____

Evaluation criteria for problem № α-2
of jury member Kanchan Chowdhury (IN. country)

№	Abbreviation (if used in table)	Explanations of gradating sub-points	N of points	
1.	2.1.	Explanation of the phenomena	1	
2.	2.2.	Understanding to use the law of conservation of ang. momentum	1	
3.	2.3	Estimation of Δt from graph	1	
4.	2.4	Explanation of what we can ~~neg~~ neglect	1	
5.	2.5	Algebric transformations and correct formula for $\Delta h/\Delta t$	2	
6.	2.6	Make conclusions for the sign of Δh	1	
7.	2.7	Additional relevant remarks	1	
		Equivalent correct parts of other ways of solution		8
		Extra conclusions or correct additions (add. to 8 pt)		

Jury member signature

Evaluation criteria for problem № αβ-3
of jury member Kanchan Chowdhry (IN country)

№	Abbreviation (if used in table)	Explanations of gradating sub-points	N of points
1.	3.1.	$a = 3^{2/3} = 2.08$ a.u.	2
2.	3.2	Resolving power of eye	1
3.	3.3	Application of Keplers 2nd laws	2
4.	3.4	Comets 0.5 revolutions = Earths 1.5 revolutions	1
5.	3.5	Use of relevant formulae	1
6.	3.6.	Interpretation of results	1
		Equivalent correct parts of other ways of solution	8
		Extra conclusions or correct additions (add. to 8 pt)	

Jury member signature _____

Evaluation criteria for problem № αβ-4
of jury member Kanchan Chowdhury (IN country)

№	Abbreviation (if used in table)	Explanations of gradating sub-points	N of points
1.	4.1	Timing for observing the phenomenon and phases of moon.	2
2.	4.2	Position of moon & Sun	2
3.	4.3.	The Byzantine army saw this phenomenon in front Bulgarian army saw this phenmm from behind	1
4.	4.4.	Artistic drawing	1
5.	4.5	What data is missing dates of June	1 1
		Equivalent correct parts of other ways of solution	8
		Extra conclusions or correct additions (add. to 8 pt)	

Jury member signature Kchowdhury

АСТРОНОМИЧЕСКОЕ ОБЩЕСТВО

EURO-ASIAN ASTRONOMICAL SOCIETY

Round **Theo**

Group **α**

XXI Международная астрономическая олимпиада

XXI International Astronomy Olympiad

Болгария, Пампорово-Смолян 5 – 13. X. 2016 Pamporovo-Smolyan, Bulgaria

язык / language	English

Evaluation criteria for problem № αβ-5

of jury member Kanchan kumar Chowdhy (IN country)

№	Abbreviation (if used in table)	Explanations of gradating sub-points	N of points
1.	5.1	Same intensity of light should be registered by the telescope from main belt & kuiper belt	2
2.	5.2	Introducing the concept of albedo	1
3.	5.3	Expression of intensity	1
4.	5.4	Use of formulae	2
5.	5.5	Final result	1
6.	5.6	Accuracy in answers	1
		Equivalent correct parts of other ways of solution	8
		Extra conclusions or correct additions (add. to 8 pt)	

Jury member signature Kchowdhy.

Round **Theo**

Group **α**

язык / language **English**

Evaluation criteria for problem № α-4

of jury member Anders Västerberg (SE)
country

№	Abbreviation (if used in table)	Explanations of gradating sub-points	N of points
1		Comet goes from under the right side of the moon Evening	1 1
2		Position of the sun and the moon relative to the Sun Gemini or Cancer	1 1
3		The moon in the west or NW and any answer based on this fact	1
4		Artistic drawing	1
5.		Partial solution Full solution (i.e. 2pts)	1 1
		Equivalent correct parts of other ways of solution	8
		Extra conclusions or correct additions (add. to 8 pt)	

Jury member signature Anders Västerberg