

## QUIZ GAME SOLUTIONS AND MARKING

### FIRST GROUP: EASY BEGIN

1. What is the standard distance of the absolute magnitude scale, in light years?  
**A: 32,6**  
 B: 10,0  
 C: 3,26  
 Time of submitting the good answer: \_\_\_\_\_
  
2. The total number of the “official” (accepted by the IAU) constellations on the whole sky?  
 A: 83  
 B: 85  
**C: 88**  
 Time of submitting the good answer: \_\_\_\_\_
  
3. What is the angular size of the semi major axis of the Earth’s orbit around Sun as seen from 1 parsec distance?  
 A: 2” (arc second)  
**B: 1” (arc second)**  
 C: 1’ (arc minute)  
 Time of submitting the good answer: \_\_\_\_\_
  
4. What is the name of the largest companion of Pluto?  
**A: Charon**  
 B: Chiron  
 C: Chronos  
 Time of submitting the good answer: \_\_\_\_\_
  
5. What is the highest atomic number (Z) of the chemical element that can be built in the core of most massive stars by “normal” fusion, before collapse?  
 A: 82, lead (Pb)  
 B: 54, xenon (Xe)  
**C: 26, iron (Fe)**  
 Time of submitting the good answer: \_\_\_\_\_

### SECOND GROUP: MEDIUM LEVEL

6. Estimate the current distance of the matter of Comet Shoemaker-Levy 9 from the Sun:  
 A: 52 AU  
 B: 12 AU  
 C: 10,4 AU  
**D: 5,2 AU since this comet was merged with Jupiter, colliding with it in 1994**  
 Time of submitting the good answer: \_\_\_\_\_
  
7. Which is the least massive among the following Messier objects? (mark one with a circle!)  
 M3                  M5                  M15                  M33                  **M57**  
 Time of submitting the good answer: \_\_\_\_\_
  
8. Which solar probe studied the Sun from an orbit reaching very high ecliptic latitudes?  
 A: Parker Solar Probe  
**B: Ulysses**  
 C: Solar Polar Probe  
 Time of submitting the good answer: \_\_\_\_\_

D: Solar Dynamics Observatory

E: Yohkoh

9. Which object is NOT a dwarf planet? (mark one with a circle!)

A: Ceres

B: Eris

C: Makemake

D: Pluto

**E: Sedna**

Time of submitting the good answer: \_\_\_\_\_

10. Which is the brightest among the following naked-eye stars?

**A: beta Ori**

B: beta Cep

C: beta Cyg

D: beta Lyr

E: beta CMa

Time of submitting the good answer: \_\_\_\_\_

### THIRD LEVEL: COMBINED TASKS

11. Calculate/estimate the average distance between the two groups (Trojans and Greeks) of Trojan asteroids of Jupiter with an accuracy of 0.1 AU.

**9.0**

Time: \_\_\_\_\_

12. What is the characteristic orbital period of a contact binary star formed by two solar type stars (in hours, rounded to the closest integer) ?

**4**

Time: \_\_\_\_\_

13. Which constellation is missing on the damaged stellar map, which you received in the envelope?

**Coma Berenices**

Time: \_\_\_\_\_

14. Which is the brightest star along the line drawn perpendicularly across the midpoint of the line connecting  $\alpha$  Vir (Spica) and  $\alpha$  Boo (Arcturus) stars? Use the stellar map from the previous envelope, and your rulers.

**$\alpha$  Leo (Regulus)**

Time: \_\_\_\_\_

15. Estimate the escape velocity from the surface of Mars (in km/sec, rounded to integer)

**5**

Time: \_\_\_\_\_

### FINAL TASK

16. Guess which is the remarkable individual object on the missing piece? What type of object is this?

Time of submitting the good answer: \_\_\_\_\_

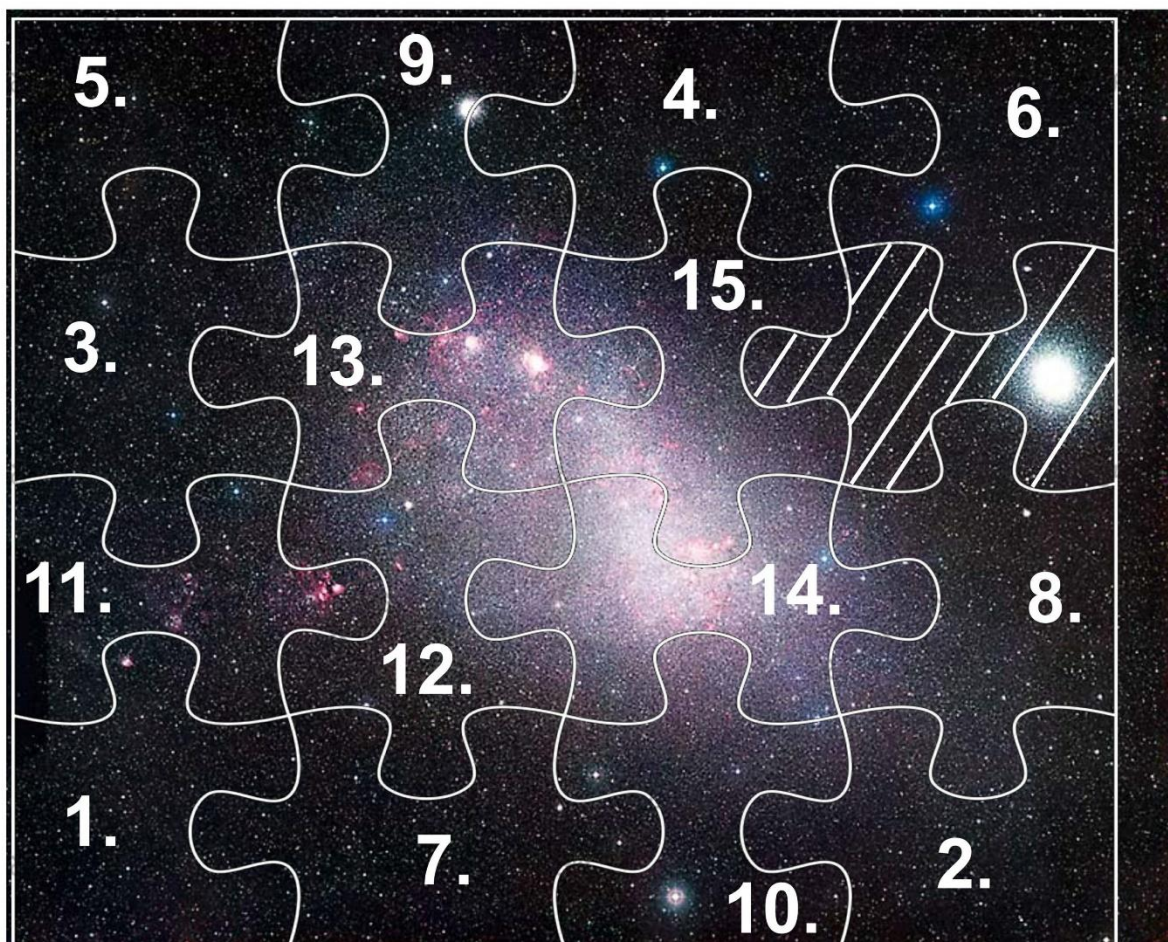
Answer 1.: IAU standard name:

**47 Tuc**

Answer 2.: IAU standard name:

**globular cluster**

**EVALUATION OF THE PUZZLED IMAGE (right positions of numbered pieces)**



HOW MANY PIECES ARE AT RIGHT PLACES AT THE END OF GAME?

signature of the quizmaster