

Cosmic Statistics and Probabilities

Statistics & Probability · Answer Key · 10 Questions

1. If you randomly select a dwarf planet from the IAU's current list, what is the approximate probability that it resides within the asteroid belt?

- A) 1/10
- B) 1/5**
- C) 1/2
- D) 9/10

2. Considering the observed number of confirmed exoplanets, what is the statistical likelihood that a star similar to our Sun in the Milky Way has at least one planet?

- A) Less than 10%
- B) Around 25%
- C) Greater than 80%**
- D) Close to 100%

3. Given the known number of planets in our solar system and the definition of a planet, what is the probability of selecting a gas giant if you pick one planet at random?

- A) 1/4**
- B) 1/2
- C) 3/8
- D) 5/8

4. If we consider all known moons in our solar system, what is the approximate probability that a randomly chosen moon orbits Jupiter?

- A) 15%
- B) 30%**
- C) 45%
- D) 60%

5. What is the statistical probability that a randomly selected asteroid from the main asteroid belt is larger than Ceres (the largest dwarf planet)?

- A) Extremely low (<0.001%)**
- B) Low (around 1%)
- C) Moderate (around 10%)
- D) High (>50%)

6. Based on observations of meteor showers, if you were to witness a random meteor streak across the night sky from Earth, what is the most probable origin of that meteor?

- A) Interstellar space
- B) The Oort Cloud
- C) A comet's debris trail**
- D) The Kuiper Belt

7. If we consider all observed supernovae in distant galaxies, what is the statistical chance that a supernova event will occur in our own Milky Way galaxy within the next 100 years?

- A) Very high (over 50%)
- B) Moderate (around 10-20%)
- C) Low (less than 1%)**
- D) Extremely low (practically zero)

8. What is the approximate statistical probability that a randomly chosen exoplanet discovered within the habitable zone of its star will be rocky, similar to Earth?

- A) Less than 20%
- B) Between 20% and 50%**
- C) Between 50% and 80%
- D) Greater than 80%

9. Given the total number of recognized constellations, what is the probability of randomly selecting a constellation that is officially designated as being in the Northern celestial hemisphere?

- A) Exactly 50%
- B) Slightly less than 50%
- C) Slightly more than 50%**
- D) Around 25%

10. If you were to randomly sample 100 stars from the Sun's stellar neighborhood, what is the statistically expected number of red dwarf stars you would find, given their prevalence?

- A) Around 5
- B) Around 25
- C) Around 75
- D) Around 95**