

Mathematical Constants and Scientific Quantities

Mathematics And Science · Answer Key · 15 Questions

1. The atomic number of Oxygen is 8 and Silicon is 14. What is the sum of these atomic numbers?

- A) 20
- B) 22**
- C) 24
- D) 26

2. If a planet has a mean orbital distance from the Sun of 0.72 AU (Venus) and 1.00 AU (Earth), what is the sum of these distances?

- A) 1.72 AU**
- B) 1.75 AU
- C) 1.82 AU
- D) 1.92 AU

3. The freezing point of water is 0 degrees Celsius and the boiling point is 100 degrees Celsius. In Kelvin, these are approximately 273.15 and 373.15 respectively. What is the sum of the Kelvin values?

- A) 546.30
- B) 646.30**
- C) 647.30
- D) 746.30

4. A light-year is approximately 9.46 trillion km. If an object is 2 light-years away, what is the total distance in trillion km?

- A) 18.92**
- B) 19.46
- C) 18.46
- D) 20.92

5. Carbon has an atomic mass of approximately 12.011 u, and Hydrogen has 1.008 u. What is the total atomic mass of a molecule with one Carbon and four Hydrogen atoms (CH₄)?

- A) 16.033 u
- B) 16.043 u**
- C) 16.053 u
- D) 17.043 u

6. Standard atmospheric pressure at sea level is 101.325 kPa. If a gauge pressure reading shows an additional 15.675 kPa, what is the total absolute pressure in kPa?

- A) 116.000
- B) 117.000**
- C) 118.000
- D) 126.000

7. The planet Mercury completes an orbit in 88 days and Mars in 687 days. What is the sum of these orbital periods?

- A) 775 days**
- B) 765 days
- C) 755 days
- D) 785 days

8. The speed of light in a vacuum is approximately 299,792 km/s. If a signal takes 2 seconds to travel a distance, what is the total distance covered (km)?

- A) 599,584**
- B) 598,584
- C) 600,584
- D) 599,684

9. A standard gram-mole of Neon has a mass of 20.18 grams and Helium has 4.00 grams. What is the total mass if you have one mole of each?

- A) 23.18 g
- B) 24.18 g**
- C) 25.18 g
- D) 26.18 g

10. The radius of the Earth is approximately 6,371 km. If a satellite orbits at an altitude of 35,786 km, what is the distance from the center of the Earth to the satellite?

- A) 41,157 km
- B) 42,157 km**
- C) 43,157 km
- D) 44,157 km

11. The sum of protons and neutrons in a nucleus is the mass number. If an isotope has 26 protons and 30 neutrons, what is the mass number?

- A) 54
- B) 56**
- C) 58
- D) 60

12. If an object weighs 15.5 kg on Earth and you add a payload of 4.75 kg, what is the new total mass in kg?

A) 19.25

B) 20.25

C) 21.25

D) 20.05

13. The circumference of the Earth at the equator is 40,075 km. If you subtract the polar circumference of 40,008 km, what is the difference?

A) 67 km

B) 77 km

C) 87 km

D) 97 km

14. The half-life of Carbon-14 is 5,730 years. If you add two half-lives together, how many total years have passed?

A) 10,460

B) 11,460

C) 12,460

D) 13,460

15. A circle has 360 degrees. If you subtract the sum of two right angles (180 degrees), what is the remaining value?

A) 90

B) 180

C) 270

D) 360