

Chapter 1: MEASUREMENT

Choose the correct answer:

1. We can write the speed of light ($c = 299,000,000 \text{ m/s}$) using the **scientific notation as:**

- (a) 2.99×10^8 (b) 29.9×10^8 (c) 0.299×10^8 (d) 299×10^8

2. A car moving with a speed of **100 km/h**, what is its speed in **m/s**?

- (a) 27.8 m/s (b) 16.7 m/s (c) 277.8 m/s (d) 167.7 m/s

3. We can express the very small number (**0.000 000 004 56**) using the scientific notation as:

- (a) 4.56×10^{-8} (b) 4.56×10^{-9} (c) 4.56×10^{-10} (d) 4.56×10^{-11}

4. The conversion factor to convert **3 min to seconds** is

- (a) $\frac{3600s}{3 \text{ min}}$ (b) $\frac{60s}{3 \text{ min}}$ (c) $\frac{3600s}{1 \text{ min}}$ (d) $\frac{60s}{1 \text{ min}}$

5. Which of the following is **not a base quantity** ?

- (a) speed (b) mass (c) length (d) time

6. How many **centimeters in 1 km**?

- (a) 10^5 cm (b) 10^2 cm (c) 10 cm (d) 10^4 cm

7. The **conversion factor** to convert **hours to seconds** is:

- (a) $\frac{1 s}{3600 h}$ (b) $\frac{3600 h}{1 s}$ (c) $\frac{1 h}{3600 s}$ (d) $\frac{3600 s}{1 h}$

8. (**1 m = 3.281 ft**) then **1.5 ft/h** equals:

- (a) $1.37 \times 10^{-3} \text{ m/s}$ (b) $1.27 \times 10^{-4} \text{ m/s}$ (c) 1645.8 m/s (d) 17717.4 m/s

9. A **square** with an **edge of 1 cm** has an area of: ($\text{area} = \text{edge}^2$)

- (a) 10^2 m^2 (b) 10^4 m^2 (c) 10^{-4} m^2 (d) 10^{-6} m^2

10. **10^3 gigawatts** is:

- (a) 10^{12} watts (b) 10^9 watts (c) 10^{-6} watts (d) 10^{-3} watts

11. The **conversion factor** to convert **10 kg to g** is:

- (a) $\frac{10^3 g}{1 kg}$ (b) $\frac{10^3 g}{10 kg}$ (c) $\frac{1 kg}{10^3 g}$ (d) $\frac{10 kg}{10^3 g}$

12. Which prefix is **true**?

- (a) milli = 10^3 (b) micro = 10^{-9} (c) mega = 10^6 (d) pico = 10^9

13. $1 \text{ mm}^2 =$

- (a) 10^{-3} m^2 (b) 10^{-6} m^2 (c) 10^{-9} m^2 (d) 10^{-12} m^2

14. If the **length, height, and width** of a **rectangular block** are **3 cm, 4 cm, and 5 cm** respectively, then the **volume** is

- (a) 60 m^3 (b) 60 cm^3 (c) 60 m (d) 60 cm

15. If **1 mi = 1609 m** then **55 mi/h** is

- (a) 15.4 m/s (b) 24.6 m/s (c) 66.3 m/s (d) 88.1 m/s

16. A **nanosecond** is:

- (a) 10^9 s (b) 10^{-9} s (c) 10^{10} s (d) 10^{-10} s

17. A **gram** is:

- (a) 10^{-6} kg (b) 10^{-3} kg (c) 10^6 kg (d) 10^3 kg

18. The **SI base unit** for **mass** is:

- (a) gram (b) pound (c) kilogram (d) kilopound

19. There are **1000 meters** in

- (a) 1 kilometer (b) 10 kilometer (c) 100 cm (d) 10,000 cm

20. How many **centimeters in 1 km**?

- (a) 10^5 cm (b) 10^2 cm (c) 10 cm (d) 10^4 cm

21. The **conversion factor** to convert **hours to seconds** is:

- (a) $\frac{1 \text{ s}}{3600 \text{ h}}$ (b) $\frac{3600 \text{ h}}{1 \text{ s}}$ (c) $\frac{1 \text{ h}}{3600 \text{ s}}$ (d) $\frac{3600 \text{ s}}{1 \text{ h}}$

22. If **1m = 3.281 ft**, then **3.375 ft³ =**

- (a) $1.2 \times 10^2 \text{ m}^3$ (b) $9.6 \times 10^{-2} \text{ m}^3$ (c) 10.5 m^3 (d) 0.21 m^3

23. 10^{-9} second is

- (a) millisecond (b) microsecond (c) nanosecond (d) gigasecond

24. A 10 kilogram =

- (a) 10^6 g (b) 10^3 g (c) 10^4 g (d) 10^2 g

25. The SI units of the base quantities (Length, Mass, Time) are:

- (a) m, kg, s (b) cm, g, s (c) km, g, s (d) km, kg, s

26. (0.000 000 00636) is equal to:

- (a) 6.36×10^{-7} (b) 6.36×10^{-8} (c) 6.36×10^{-9} (d) 6.36×10^{-10}

27. 50 km =

- (a) 5×10^5 cm (b) 5×10^6 cm (c) 5×10^7 cm (d) 5×10^8 cm

28. 100 g/cm^3 =

- (a) 10^3 kg/m^3 (b) 10^4 kg/m^3 (c) 10^5 kg/m^3 (d) 10^6 kg/m^3

29. a microsecond is:

- (a) 10^6 s (b) 10^{-6} s (c) 10^9 s (d) 10^{-9} s

30. The conversion factor to convert **6 m to mm** is:

- (a) $\frac{10^3 \text{ mm}}{1 \text{ m}}$ (b) $\frac{10^3 \text{ mm}}{6 \text{ m}}$ (c) $\frac{1 \text{ m}}{10^3 \text{ mm}}$ (d) $\frac{6 \text{ m}}{10^3 \text{ mm}}$

Are the following statements (True ✓) or (False ✗) ?

31. The SI base unit for mass is gram.

- (a) True (b) False

32. There are 1209600 seconds in one week.

- (a) True (b) False