

HOME WORK CHAPTER 01 PHYSICS 101

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1. A sphere with a radius of 1.7 cm has a volume of:

$$(V = \frac{4}{3} \pi r^3, 1 \text{ m} = 10^2 \text{ cm})$$

- A) $2.1 \times 10^{-5} \text{ m}^3$
- B) $9.1 \times 10^{-4} \text{ m}^3$
- C) $3.6 \times 10^{-3} \text{ m}^3$
- D) 0.11 m^3
- E) 21 m^3

$$r = 1.7 \text{ cm} \times \frac{1 \text{ m}}{10^2 \text{ cm}} = 1.7 \times 10^{-2} \text{ m}$$

$$V = \frac{4}{3} \pi r^3 = \frac{4\pi}{3} (1.7 \times 10^{-2})^3 = 2.1 \times 10^{-5} \text{ m}^3$$

2. The number of significant figures in 0.00150 is:

- A) 2
- B) 3
- C) 4
- D) 5
- E) 6

3 5.7



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3. The number of significant figures in 15.0 is:

- A) 1
- B) ~~2~~
- C) 3
- D) 4
- E) 5

3 5.0

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4. $3.2 \times 2.7 =$

- A) 9
- B) 8
- C) 8.6
- D) 8.64
- E) 8.640

$$\begin{array}{ccc} \underline{3.2} & \times & \underline{2.7} = \underline{8.64} \\ 2 \text{ s.f.} & & 2 \text{ s.f.} \end{array}$$

8.6



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5. Six million seconds is approximately equal to :

- A) One day
- B) Ten days
- C) Two months
- D) One year
- E) Ten years

$$\Rightarrow 6 \times 10^6 \text{ s} \times \frac{1 \text{ min}}{60 \text{ s}} \times \frac{1 \text{ hr}}{60 \text{ min}} \times \frac{1 \text{ day}}{24 \text{ hr}} = 69.4 \text{ days}$$

$$69.4 \text{ days} \times \frac{1 \text{ month}}{30 \text{ days}} = 2.31 \text{ month}$$

E) Ten years

6. The unit of mass density might be: ($\rho = m/v$)

SI

kg/m^3

g/mL

$$\rho = \frac{m}{v} \rightarrow \frac{\text{kg}}{\text{m}^3}$$

$$\rho = \frac{m}{v} \rightarrow \frac{\text{g}}{\text{mL}}$$



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7. Suppose $A = BC$, where A has the dimensions L/M and C have the dimensions L/T .
Then B has the dimension:

- A) T/M
- B) L^2/TM
- C) TM/L^2
- D) L^2T/M
- E) M/L^2T

$$A = BC$$

$$\cancel{T} \times \frac{L}{M} = B \times \frac{\cancel{L}}{\cancel{T}} \times \frac{\cancel{T}}{\cancel{L}}$$

$$B = \frac{T}{M}$$



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8. $5.0 \times 10^5 + 3.0 \times 10^6 =$

A) 8.0×10^5

B) 8.0×10^6

C) 5.3×10^5

D) 3.5×10^5

E) 3.5×10^6

$$\underline{5.0 \times 10^5} + \underline{3.0 \times 10^6} =$$

$$\underline{0.5 \times 10^6} + \underline{3.0 \times 10^6}$$

$$\boxed{3.5 \times 10^6}$$



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9. The SI base unit for mass is:

- A) gram
- B) pound
- C) kilogram
- D) ounce
- E) kilopound

kg

$$1 \text{ ns} = 10^{-9} \text{ s}$$

10. A nanosecond is:

- ~~A) 10^9 s~~
- B) 10^{-9} s
- C) 10^{-6} s
- D) 10^{-15} s
- E) 10^{-12} s



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