

Choose the correct answer.

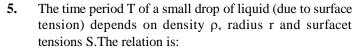
- The two shorter sides of right angled triangle are 5 cm and 12 cm. Let θ denote the angle opposite to the 5 cm side. Find $\sin \theta$,
 - (1) $\frac{5}{13}$ (2) $\frac{5}{12}$ (3) $\frac{7}{12}$ (4) $\frac{7}{14}$

Find the value of $\cos 106^{\circ}$ (1) $\frac{6}{25}$ (2) $-\frac{7}{25}$ (3) $\frac{25}{4}$ (4) $\frac{3}{25}$

The value of $1 + \frac{1}{4} + \frac{1}{16} + \frac{1}{64} + \dots \text{upto } \infty$, is:

(1) $\frac{5}{4}$ (2) $\frac{4}{3}$ (3) $\frac{6}{5}$ (4) $\frac{7}{6}$

4.	If $x = at + bt^2$, where x is the distance travelled by a body in kilometers while t is the time in seconds, then the unit of b is:				
	(1) Km/s	$(2) \text{ Km/s}^2$	(3) Km-s	$(4) \mathrm{Km}\text{-}\mathrm{s}^2$	



(1)
$$T \propto (\rho r^3 / S)^{1/2}$$

(2)
$$T \propto \rho r S$$

(3)
$$T \propto \rho r/S$$

(4)
$$T \propto (S/\rho r)$$

6.	The time dependence of a physical qunatity p is given by $P = P_0 \exp(-\alpha t^2)$ [where α is a constant and t is time]. The constant α :						
	(1) is dimensionless (3) has dimensions [T ²]	(2) has dimensions [T⁻²](4) has dimensions of P					

 $v = at + \frac{b}{t+c}$. Find the dimensions of a, where t is time

and υ is velocity: (1) L¹T⁻¹ (2) T¹

- (3) L
- $(4) L^{1}T^{-2}$

8. The equation of state of some gases can be expressed as;

$$\left(P + \frac{a}{V^2}\right)(V - b) = RT$$

where P is the pressure, V the volume, T the absolute temperature and a, b, R are constants. The dimensions of 'a' are:

- (1) $[ML^5T^{-2}]$
- (2) $[ML^{-1}T^{-2}]$
- (3) $[L^3]$
- $(4) [L^6]$

9. Dimensions of $\sin^{-(1/2)}$ are:

 $(1)\,\frac{1}{T}$

(2) T (3) $M^1L^1T^{-2}$ (4) $M^0L^0T^0$

10. The potential energy of a particle varies with distance x

from a fixed points as $U = \frac{A\sqrt{x}}{x+B}$ where A and B are

constnats. The dimensions of AB is:

- (1) $[ML^{3/2}T^{-2}]$
- (2) $[ML^{7/2}T^{-2}]$
- (3) $[M^2L^{5/2}T^{-2}]$
- (4) Dimensionless