PHYSICS CLASS 11 BATCH

Basic Maths & Calculus

Assignment -02

1. Which of the following formula is wrong.
(1) $\sin 2\theta = 2\sin\theta \cdot \cos\theta$
(2) $\cos(2\theta) = \cos^2\theta - \sin^2\theta$
(3) $\sin\theta = 2\sin\frac{\theta}{2}\cos\frac{\theta}{2}$
(4) $\cos\theta = \sin^2\frac{\theta}{2} - \cos^2\frac{\theta}{2}$

2. Find distance between centre to corner of equilateral triangle of side a.

3. Volume of cone of Height H and radius R

4. Find value of different trigonometric ratio
(1) $\sin(-45°)$ (2) $\cos(405°)$
(3) $\sin(390°)$ (4) $\sin(300)$
(5) $\tan(-120°)$

5. If $\cos(\alpha) = 0.3$ and α is an acute angle, what is the value of $\sin(\alpha)$?
(1) 0.7 (2) 0.9
(3) 0.6 (4) 0.4

6. If $\tan(\beta) = 1.2$ and β is an acute angle, what is the value of $\cos(\beta)$?
(1) 0.5 (2) 0.6
(3) 0.8 (4) 0.9

7. If $\sin(\alpha) = 0.6$ and $\cos(\beta) = 0.8$, where α and β are acute angles, what is the value of $\sin(\alpha + \beta)$?
(1) 0.28 (2) 0.48
(3) 0.96 (4) 1.88

8. In a right triangle, the length of the hypotenuse is 10 cm and one of the acute angles is 30°. What is the length of the side opposite to the 30° angle?
(1) 5 cm (2) $5\sqrt{3}$ cm
(3) 10 cm (4) $10\sqrt{3}$ cm

9. If $\tan(\alpha) = 1.5$, where $0° < \alpha < 90°$, find the value of $\sec(\alpha)$.
(1) 0.67 (2) 1.800
(3) 0.56 (4) 1.500

10. In a triangle ABC, the side AB is 8 cm, side BC is 8 cm, and side AC is $8\sqrt{2}$ cm. What is the measure of angle C?
(1) 30° (2) 45°
(3) 60° (4) 90°

11. Given that $\cot(\theta) = 0.5$, where $0° < \theta < 90°$, find the value of $\sin(\theta) - \cos(\theta)$.
(1) 0.6 (2) 0.4
(3) 0.8 (4) 1.0

12. If $\cos(\alpha) = \frac{1}{\sqrt{2}}$ and $\cos(\beta) = \frac{\sqrt{3}}{2}$, where $0° < \alpha, \beta < 90°$, find the value of $\sin(\alpha + \beta)$.
(1) $0.\overline{58}$
(2) 0.72
(3) 1.85
(4) 0.96

13. In a right triangle, the hypotenuse is 13 cm and one of the acute angles is 60°. What is the length of the side adjacent to the 60° angle?
(1) 6.5 cm
(2) $6.5\sqrt{3}$ cm
(3) 7 cm
(4) $7\sqrt{3}$ cm

14. If $\cos(\alpha) = 0.5$, find the value of $\cos(\pi - \alpha)$.
(1) − 0.5
(2) − 0.4
(3) 0.4
(4) 0.5

ANSWER KEY

1. **(4)**

2. $\frac{a}{\sqrt{3}}$

3. $v = \frac{1}{3}\pi R^2 H$

4. **(1)** $-\frac{1}{\sqrt{2}}$ **(2)** $\frac{\sqrt{2}}{2} = \frac{1}{\sqrt{2}}$

(3) $\frac{1}{2}$ **(4)** $-\frac{\sqrt{3}}{2}$

(5) $\sqrt{3}$

5. **(2)**
6. **(2)**
7. **(3)**
8. **(1)**
9. **(2)**
10. **(2)**
11. **(2)**
12. **(4)**
13. **(1)**
14. **(1)**