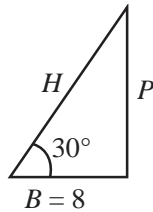# Yakeen NEET 2.0 (2026)

**Physics by Saleem Sir**

**KPP-01**

## Basic Maths and Calculus (Mathematical Tools)

इस KPP का उद्देश्य (Purpose) आपकी Trigonometry में involve calculation और formula को Improve & fast करना है। इसे 30 मिनट में करने की कोशिश करे ताकी हम Speed और Accuracy पर काम कर सके।

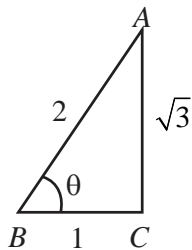**1.** If $\tan\theta = \dfrac{4}{3}$. Find the value of $\sin\theta$

(1) $\dfrac{3}{5}$   (2) $\dfrac{4}{3}$

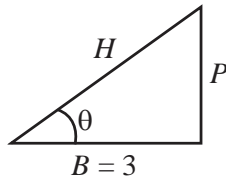(3) $\dfrac{4}{5}$   (4) $\dfrac{5}{4}$

**2.** Find the value of $P$



(1) $\dfrac{\sqrt{3}}{8}$   (2) $8$

(3) $\dfrac{8}{\sqrt{3}}$   (4) $0$

**3.** Find the angle $\angle ABC$



(1) $0°$    (2) $60°$
(3) $30°$    (4) $45°$

**4.** If $\theta$ is very small then find $H$.



(1) $3$    (2) $\dfrac{3}{5}$

(3) $\dfrac{4}{5}$    (4) $5$

**5.** If $y = \dfrac{\tan\theta}{\theta}$, then find the value of $y$ at $\theta = 10°$.

(1) $10°$    (2) $0$
(3) $1$    (4) $\sqrt{3}$

**6.** Find the value of $\sin 105°$

(1) $\dfrac{\sqrt{3}}{2}$   (2) $\dfrac{\sqrt{3}}{2\sqrt{2}}$

(3) $\dfrac{2\sqrt{2}}{\sqrt{3}+1}$   (4) $\dfrac{\sqrt{3}+1}{2\sqrt{2}}$

**7.** Find the value of $\cos 75°$

(1) $\dfrac{\sqrt{3}-1}{2\sqrt{2}}$   (2) $\dfrac{2\sqrt{2}}{\sqrt{3}-1}$

(3) $\dfrac{\sqrt{3}}{\sqrt{2}}$   (4) $\sqrt{2}$

**8.** Find the value of $\sin 75° + \sin 15°$

(1) $0°$    (2) $\dfrac{2}{\sqrt{3}}$
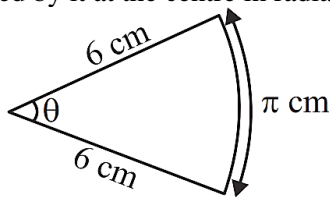
(3) $\sqrt{3}$    (4) $\sqrt{\dfrac{3}{2}}$

**9.** If $\tan\theta = \dfrac{\sqrt{5}}{2}$ then; value of $\cos\theta$ is

(1) $\dfrac{2}{3}$    (2) $\dfrac{3}{2}$

(3) $\dfrac{\sqrt{5}}{3}$    (4) $5$

**10.** Which of the following is correct for $\sin(2\theta)$
(1) $2\sin\theta \cdot \cos\theta$
(2) $\sin^2\theta$
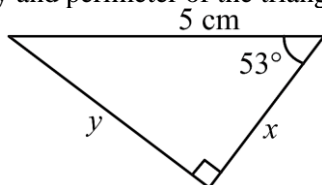(3) $\sin^2\theta - \cos^2\theta$
(4) $2\sin\theta$

**11.** A circular arc of length $\pi$ cm. Find angle subtended by it at the centre in radian and degree.



**12.** Convert 135° into radians.

**13.** The two shorter sides of right angled triangle are 5 cm and 12 cm. Let $\theta$ denote the angle opposite to the 5 cm side. Find $\sin\theta$, $\cos\theta$ and $\tan\theta$.

**14.** Find x, y and perimeter of the triangle shown



**15.** Find the value of:
(i) $\sin 30° + \cos 60°$
(ii) $\sin 0° - \cos 0°$
(iii) $\tan 45° - \tan 37°$

**16.** Change degree into radian:
(1) 160°, (2) 135°, (3) 75°, (4) 65°

**17.** Change radian into degree:
(1) $\dfrac{\pi}{4}$, (2) $\dfrac{7\pi}{2}$, (3) $\dfrac{3\pi}{5}$, (4) $\dfrac{2\pi}{3}$, (5) $\dfrac{3\pi}{4}$

**18.** Evaluate:
(1) $\cos 15°$
(2) $\cos 53°$
(3) $\tan 37°$
(4) $\sin 53° - \cos 37°$

**19.** cos 2A is equal to:
(1) $1 - 2\sin^2 A$ (2) $2\cos^2 A - 1$
(3) $\cos^2 A - \sin^2 A$ (4) All

**20.** $\sin^2 4\theta + \cos^2 4\theta$ is equal to:
(1) 4 (2) 2
(3) −1 (4) 1

**21.** cos (A + B) is equal to:
(1) cos A cos B + sin A cos B
(2) cos A sin B − sin A sin B
(3) cos A cos B + sin A sin B
(4) cos A cos B − sin A sin B

**22.** $1 + \tan^2 \theta$ is equal to:
(1) sec $\theta$ (2) sec 2$\theta$
(3) $\sec^2 \theta$ (4) 2 sec $\theta$

**23.** Match List-I with List-II.

| | List-I | | List-II |
|---|---|---|---|
| (A) | sin 30° | (I) | $\sqrt{3}$ |
| (B) | tan 30° | (II) | $\dfrac{\sqrt{3}}{2}$ |
| (C) | cos 30° | (III) | $\dfrac{1}{2}$ |
| (D) | cot 30° | (IV) | $\dfrac{1}{\sqrt{3}}$ |

Choose the correct answer from the options given below:
(1) A-I, B-III, C-IV, D-II
(2) A-IV, B-II, C-III, D-I
(3) A-II, B-I, C-IV, D-III
(4) A-III, B-IV, C-II, D-I

**24.** Evaluate
$4 \tan^2 45° + 4 \cos^2 30° - 8 \sin^2 60°$
(1) 1 (2) 0
(3) 2 (4) 4

**25.** In $\triangle ABC$, right angled at B and $\sin C = \dfrac{3}{5}$, then ratio of sin A and cos A is:
(1) 4 : 3 (2) 3 : 4
(3) 1 : 7 (4) 7 : 4

**26.** Value of sin(37°) cos(53°) is:
(1) 9/25 (2) 12/25
(3) 16/25 (4) 3/5

**27.** If sin $\theta$ = cos $\theta$, then the value of $\theta$ will be:
(1) 0° (2) 45°
(3) 30° (4) 90°

**28.** Value of sin (37°) cos (53°) is:
(1) $\dfrac{9}{25}$ (2) $\dfrac{12}{25}$
(3) $\dfrac{16}{25}$ (4) $\dfrac{3}{5}$

**29.** If $\sin\theta = \dfrac{1}{3}$, then cos $\theta$ will be:
(1) $\dfrac{8}{9}$ (2) $\dfrac{4}{3}$
(3) $\dfrac{2\sqrt{2}}{3}$ (4) $\dfrac{3}{4}$

**30.** Find the approximate value of tan 2°

(1) $\dfrac{\pi}{90}$  (2) $\dfrac{\pi}{180}$

(3) $\dfrac{\pi}{60}$  (4) $\dfrac{\pi}{30}$

**31.** Find value of sin (2° + 3°)

**32.** Find value of sin 2° + sin 3°

**33.** Suppose
a particle is projected with velocity v = 90 m/s. at angle of $\theta$ with horizontal, than max height attain by particle $H_{max}$ and range R of the particle is given by relation $H = \dfrac{u^2 \sin^2 \theta}{2g}$, $R = \dfrac{u^2 \sin 2\theta}{g}$

Find the approximation value of H and R in a hypothetic condition if $\theta = 2°$.
(take $\pi^2 = 10$, g = 10 m/s²)

# Answer Key

1. **(3)**
2. **(3)**
3. **(2)**
4. **(1)**
5. **(3)**
6. **(4)**
7. **(1)**
8. **(4)**
9. **(1)**
10. **(1)**
11. **(30°)**
12. $\dfrac{3\pi}{4}$ radians
13. $\sin\theta = \dfrac{5}{13},\ \cos\theta = \dfrac{12}{13},\ \tan\theta = \dfrac{5}{12}$
14. x = 3cm, y = 4cm,
    Perimeter of the triangle = 12 cm
15. (i) 1, (ii) –1, (iii) 1/4
16. (1) $\dfrac{8\pi}{9}$, (2) $\dfrac{3\pi}{4}$, (3) $\dfrac{5\pi}{12}$, (4) $\dfrac{13\pi}{36}$
17. (1) 45°, (2) 630°, (3) 108°, (4) 120°, (5) 135°

18. (1) $\dfrac{\sqrt{3}+1}{2\sqrt{2}}$, (2) 3/5, (3) 3/4, (4) 0
19. **(4)**
20. **(4)**
21. **(4)**
22. **(3)**
23. **(4)**
24. **(1)**
25. **(1)**
26. **(1)**
27. **(2)**
28. **(1)**
29. **(3)**
30. **(1)**
31. $\dfrac{\pi}{36}$
32. $\dfrac{\pi}{36}$
33. $H = \dfrac{1}{2},\ \mathbf{R = 18\pi}$