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# Practice **Set 4**

## Trigonometry

### **MATERIAL**

#### Topics :

1. Units of Angles (degree and radian) 2. Trigonometric Functions 3. Periods of Trigonometric functions 4. Allied & Compound Angles, Multiple –Submultiples angles 5. Sum and factor formula

**DDCE final exam weightage of this topic :** 3 Questions ( 6 Marks )

**Total Practice sets  
of this topic :**

$8 \text{ ( sets ) } \times 25 \text{ ( questions ) } = 200 \text{ Questions}$

**Total Practice tests  
of this topic :**

$2 \text{ ( exams ) } \times 30 \text{ ( questions ) } = 60 \text{ Questions}$

**Offline / Online  
during lecture :**

$4 \text{ ( lectures ) } \times 50 \text{ ( Questions ) } = 200 \text{ Question}$

**Total 460 Questions to  
practice this topic**



**91739 04421**



# UNITY TRAINING ACADEMY FOR DDCET

## Section 2:

### Topic 2: Trigonometry

1. If  $\sec \theta = \frac{3}{2}$  and  $0 < \theta < \frac{\pi}{2}$ , then  $\tan \theta =$  \_\_\_\_\_.
  - a.  $\frac{\sqrt{3}}{2}$
  - b. 0
  - c.  $\frac{9}{4}$
  - d.  $\frac{\sqrt{5}}{2}$
2. If  $\theta = \frac{7\pi}{4}$  then  $\theta$  is in the \_\_\_\_\_ quadrant.
  - a. First
  - b. Third
  - c. Second
  - d. Fourth
3. If  $\tan \theta = \sqrt{2}$  and  $\cos \theta = \frac{1}{\sqrt{3}}$  then  $\theta$  is in the \_\_\_\_\_ quadrant.
  - a. First
  - b. Third
  - c. Second
  - d. Fourth
4.  $\sin 90^\circ \cdot \sin 60^\circ \cdot \sin 45^\circ \cdot \sin 0^\circ =$  \_\_\_\_\_.
  - a. 0
  - b. 1
  - c. -1
  - d.  $\frac{1}{2}$





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5.  $\sin 27^\circ \cos 33^\circ + \cos 27^\circ \sin 33^\circ = \underline{\hspace{2cm}}$ .

- a. 1
- b. 0
- c.  $\frac{\sqrt{3}}{2}$
- d.  $-\frac{\sqrt{3}}{2}$

6.  $\sin 120^\circ \cos 30^\circ - \cos 120^\circ \sin 30^\circ = \underline{\hspace{2cm}}$ .

- a. 1
- b. 0
- c.  $\frac{\sqrt{3}}{2}$
- d.  $-\frac{\sqrt{3}}{2}$

7.  $\cos 90^\circ \cos 60^\circ + \sin 90^\circ \sin 60^\circ = \underline{\hspace{2cm}}$ .

- a. 1
- b. 0
- c.  $\frac{\sqrt{3}}{2}$
- d.  $\frac{1}{2}$

8.  $\sin^{-1}(\cos \frac{\pi}{3}) = \underline{\hspace{2cm}}$ .

- a.  $\frac{\pi}{3}$
- b.  $\frac{\pi}{4}$
- c.  $\frac{\pi}{2}$
- d.  $\frac{\pi}{6}$





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9.  $\cos^{-1}\left(-\frac{\sqrt{3}}{2}\right) = \underline{\hspace{2cm}}$ . [DDCET -2024]

- a.  $\frac{2\pi}{3}$
- b.  $-\frac{\pi}{6}$
- c.  $\frac{5\pi}{3}$
- d.  $\frac{5\pi}{6}$

10.  $\cos^{-1}\left(\frac{\sqrt{2}}{2}\right) = \underline{\hspace{2cm}}$

- a.  $\frac{3\pi}{4}$
- b.  $\frac{\pi}{4}$
- c.  $\frac{5\pi}{4}$
- d.  $-\frac{\pi}{4}$

11. If  $\cos \theta + \sin \theta = \sqrt{2}$ , then  $\sin 2\theta = \underline{\hspace{2cm}}$ .

- a. 1
- b. 2
- c. 3
- d. -1

12.  $\sin 20^\circ + \sin 40^\circ = \underline{\hspace{2cm}}$ .

- a.  $\cos 10^\circ$
- b.  $\cos 20^\circ$
- c.  $-\cos 10^\circ$
- d.  $-\cos 20^\circ$





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13. If  $\cos \theta - \sin \theta = 0$ , then  $\sin 2\theta =$  \_\_\_\_\_.

- a. 0
- b. 1
- c. -1
- d.  $\frac{1}{\sqrt{2}}$

14.  $\sin 45^\circ + \sin 75^\circ =$

- a.  $\sqrt{3} \cos 15^\circ$
- b.  $-\sqrt{3} \cos 15^\circ$
- c.  $\sqrt{2} \cos 15^\circ$
- d.  $-\sqrt{2} \cos 15^\circ$

15. If  $f(x) = \log (\tan x)$  then  $f\left(\frac{\pi}{4}\right) =$  \_\_\_\_\_.

- a. 1
- b. 0
- c.  $1/2$
- d. -1

16.  $\sin \frac{\pi}{8} + \sin \frac{9\pi}{8} =$  \_\_\_\_\_.

- a.  $\frac{\sqrt{3}}{2}$
- b. 0
- c.  $\frac{1}{\sqrt{2}}$
- d.  $-\frac{\sqrt{3}}{2}$





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## Section 2:

### Topic 2: Trigonometry

17.  $\sin 150^\circ = \underline{\hspace{2cm}}$ .

- a.  $1/2$
- b.  $-1/2$
- c.  $\frac{1}{\sqrt{2}}$
- d.  $\frac{\sqrt{3}}{2}$

18.  $\cot 225^\circ = \underline{\hspace{2cm}}$ .

- a.  $1/2$
- b.  $-1/2$
- c.  $1$
- d.  $-1$

19.  $\sin^2 30^\circ + \sin^2 60^\circ = \underline{\hspace{2cm}}$ .

- a.  $1$
- b.  $-1$
- c.  $0$
- d.  $-1/2$

20. If  $\sin(x) = 3/5$  and  $x$  is in Quadrant II, what is  $\cos(x)$ ?

- a.  $-4/5$
- b.  $4/5$
- c.  $-3/5$
- d.  $3/5$





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## Section 2:

### Topic 2: Trigonometry

21. What is the value of  $\sin(2x)$  if  $\sin(x) = 0.6$  and  $\cos(x) = 0.8$ ?

- a. 0.96
- b. 0.48
- c. 1.4
- d. 0.36

22. Which of the following is NOT a valid identity?

- a.  $\tan(x) = \sin(x)/\cos(x)$
- b.  $1 + \tan^2 x = \sec^2 x$
- c.  $\sin^2 x + \cos^2 x = 1$
- d.  $\sin(x) = 1/\cos(x)$

23. If  $\tan \theta = -\frac{12}{5}$  and  $-\frac{3\pi}{2} < \theta < 2\pi$ , then  $\cos \theta =$  \_\_\_\_\_. [DDCET 2024]

- a.  $-\frac{12}{13}$
- b.  $\frac{12}{13}$
- c.  $\frac{5}{13}$
- d.  $-\frac{5}{13}$

24. If  $\sin \theta = -\frac{3}{5}$  and  $\pi < \theta < \frac{3\pi}{2}$ , then  $\tan \theta =$  \_\_\_\_\_.

- a.  $-\frac{4}{5}$
- b.  $\frac{3}{4}$
- c.  $\frac{4}{5}$
- d.  $-\frac{3}{4}$





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25. If  $\cos \theta = -\frac{1}{2}$  and  $\frac{\pi}{2} < \theta < \pi$ , then  $\sin \theta =$  \_\_\_\_\_.

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

b. 0

c.  $\frac{1}{\sqrt{2}}$

d.  $-\frac{\sqrt{3}}{2}$

