

Name

Mastering Trigonometry Concepts

Total questions: 15

Worksheet time: 8mins

Instructor name: Dr. Ramanathan Saitechinfo

Class

Date

1. Graph the function $y = \sin(x)$ for one full cycle.

- a) Graph of $y = \sin(x)$ from $x = 0$ to $x = 2\pi$ shows a wave starting at $(0,0)$, peaking at $(\pi/2,1)$, returning to $(\pi,0)$, dipping to $(3\pi/2,-1)$, and returning to $(2\pi,0)$.
- b) Graph of $y = \sin(x)$ from $x = 0$ to $x = \pi$ shows a wave peaking at $(\pi/2,0.5)$ and returning to $(\pi,0)$.
- c) Graph of $y = \sin(x)$ from $x = 0$ to $x = 4\pi$ shows multiple cycles with peaks at $(3\pi/2,1)$ and $(5\pi/2,1)$.
- d) Graph of $y = \sin(x)$ from $x = 0$ to $x = 2\pi$ shows a straight line from $(0,0)$ to $(2\pi,0)$.

2. Graph the function $y = \cos(x)$ for one full cycle.

- a) The graph of $y = \cos(x)$ for one full cycle is a wave starting at $(0,1)$, going down to $(\pi/2,0)$, reaching $(\pi,-1)$, going up to $(3\pi/2,0)$, and returning to $(2\pi,1)$.
- b) The graph of $y = \cos(x)$ is a straight line from $(0,1)$ to $(2\pi,1)$.
- c) The graph of $y = \cos(x)$ has peaks at $(\pi/4,1)$ and $(5\pi/4,1)$.
- d) The graph of $y = \cos(x)$ starts at $(0,0)$ and ends at $(2\pi,0)$.

3. What is the value of $\sin(30^\circ)$ in radians?

- a) 0.75
- b) 0.25
- c) 0.5
- d) 1.0

4. Convert 120° to radians.

- a) $5\pi/6$
- b) $\pi/3$
- c) $3\pi/4$
- d) $2\pi/3$

12. What is the value of $\cos(180^\circ)$ in radians?

- a) 0
- b) 1
- c) -1
- d) -0.5

13. Convert 240° to radians.

- a) $4\pi/3$
- b) $5\pi/6$
- c) $3\pi/4$
- d) $2\pi/3$

14. Graph the function $y = \sec(x)$ for one full cycle.

- a) Graph $y = \sec(x)$ from $x = -\pi$ to $x = \pi$, with a minimum point at $(-\pi/2, 1)$.
- b) Graph $y = \sec(x)$ from $x = -\pi/4$ to $x = \pi/4$, showing no vertical asymptotes.
- c) Graph $y = \sec(x)$ from $x = 0$ to $x = \pi$, with asymptotes at $x = 0$ and $x = \pi$.
- d) Graph the function $y = \sec(x)$ from $x = -\pi/2$ to $x = \pi/2$, showing vertical asymptotes at $x = -\pi/2$ and $x = \pi/2$, with a minimum point at $(0, 1)$.

15. What is the sum of $\cos(0^\circ)$ and $\cos(90^\circ)$?

- a) 1
- b) 1.5
- c) 0
- d) -1

Answer Keys

1. a) Graph of $y = \sin(x)$ from $x = 0$ to $x = 2\pi$ shows a wave starting at $(0,0)$, peaking at $(\pi/2,1)$, returning to $(\pi,0)$, dipping to $(3\pi/2,-1)$, and returning to $(2\pi,0)$.
2. a) The graph of $y = \cos(x)$ for one full cycle is a wave starting at $(0,1)$, going down to $(\pi/2,0)$, reaching $(-\pi,\pi)$, going up to $(3\pi/2,0)$, and returning to $(2\pi,1)$.
3. c) 0.5
4. d) $2\pi/3$
5. a) $\sqrt{2}/2$
6. b) $\sqrt{3}$
7. c) $(1 + \sqrt{3})/2$
8. a) -1
9. d) 135 degrees
10. b) Graph the function $y = \tan(x)$ from $x = -\pi/2$ to $x = \pi/2$, showing vertical asymptotes at $x = -\pi/2$ and $x = \pi/2$, with the curve passing through $(-\pi/4, -1)$, $(0, 0)$, and $(\pi/4, 1)$.
11. a) $(\sqrt{2} + \sqrt{6})/4$
12. c) -1
13. a) $4\pi/3$
14. d) Graph the function $y = \sec(x)$ from $x = -\pi/2$ to $x = \pi/2$, showing vertical asymptotes at $x = -\pi/2$ and $x = \pi/2$, with a minimum point at $(0, 1)$.
15. a) 1

