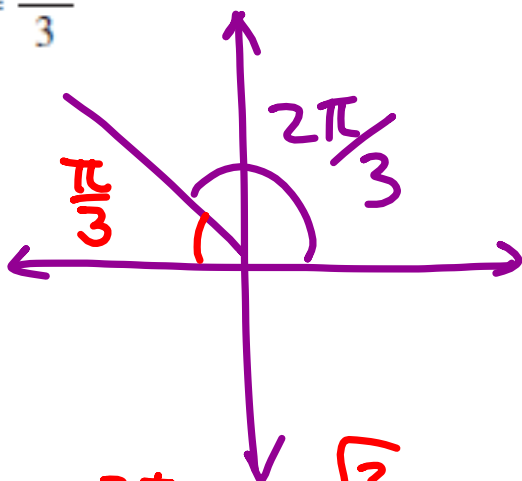


- (a) Find the reference number for t . $\frac{\pi}{3}$
- (b) Find the terminal point $P(x, y)$ on the unit circle determined by t .
- (c) Find the six trigonometric functions of t .

3. $t = \frac{2\pi}{3}$



$$\sin \frac{2\pi}{3} = \frac{\sqrt{3}}{2}$$

$$\cos \frac{2\pi}{3} = -\frac{1}{2}$$

$$\tan \frac{2\pi}{3} = -\sqrt{3}$$

$$(\cos \theta, \sin \theta)$$

$$\left(\cos \frac{2\pi}{3}, \sin \frac{2\pi}{3} \right)$$

$$\left(-\cos \frac{\pi}{3}, \sin \frac{\pi}{3} \right)$$

$$\left(-\frac{1}{2}, \frac{\sqrt{3}}{2} \right)$$

$$\csc \frac{2\pi}{3} = \frac{2}{\sqrt{3}}$$

$$\sec \frac{2\pi}{3} = -2$$

$$\cot \frac{2\pi}{3} = -\frac{1}{\sqrt{3}}$$

- (a) Show that P is on the unit circle.
- (b) Suppose that P is the terminal point determined by t . Find $\sin t$, $\cos t$, and $\tan t$.

1. $P\left(-\frac{\sqrt{3}}{2}, \frac{1}{2}\right)$

2. $P\left(\frac{3}{5}, -\frac{4}{5}\right)$

$$\sin\theta = -\frac{4}{5} \quad \tan\theta = -\frac{4}{3}$$

$$\cos\theta = \frac{3}{5}$$

29–36 ■ A trigonometric function is given.

(a) Find the amplitude, period, and phase shift of the function.

(b) Sketch the graph.

29. $y = 10 \cos \frac{1}{2}x$

31. $y = -\sin \frac{1}{2}x$

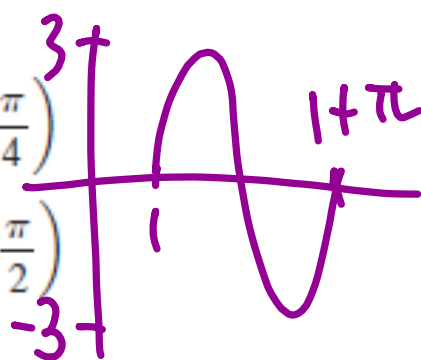
33. $y = 3 \sin(2x - 2)$

30. $y = 4 \sin 2\pi x$

32. $y = 2 \sin\left(x - \frac{\pi}{4}\right)$

34. $y = \cos 2\left(x - \frac{\pi}{2}\right)$

A: 3, P: π , PS: 1



$$y = a \sin(b(x-c)) + d$$

Ampl.: $|a|$

freq: b

period: $\frac{2\pi}{b}$

Ph. Shift: c

(Hor. transl.)

Vert. shift: d