Class Name : **MATH 1050/1051 Fall 2018**

Instructor Name : **Nguyen**

Student Name : _____

Instructor Note :

1. Answer the following.

(a) Find an angle between $0°$ and $360°$ that is coterminal with $860°$.

(b) Find an angle between 0 and 2π that is coterminal with $\frac{13\pi}{5}$.

Give exact values for your answers.

2. Find the terminal point on the unit circle determined by $\frac{3\pi}{2}$ radians.

Use exact values, not decimal approximations.

3. Suppose that $\left(x, -\frac{8}{17}\right)$ is a point in quadrant IV lying on the unit circle.

Find x. Write the exact value, not a decimal approximation.

4. Find the exact value of $\sin 180°$.

5. Find the exact values below.

$\csc 270°$

$\cot 270°$

6. Find the exact values below.

$\sin \dfrac{23\pi}{4}$

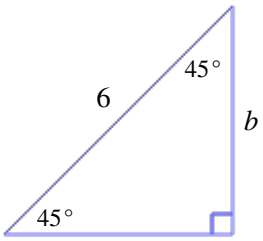
$\cot(-540°)$

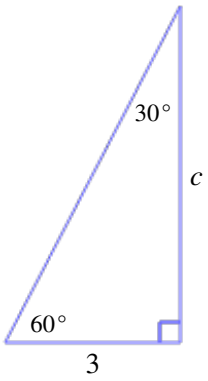
7. Suppose that θ is an angle in standard position whose terminal side intersects the unit circle at $\left(\dfrac{8}{17}, \dfrac{15}{17}\right)$.

Find the exact values of $\sec\theta$, $\cos\theta$, and $\tan\theta$.

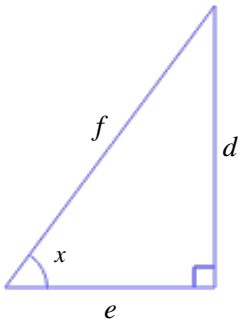
8. For the right triangles below, find the exact values of the side lengths b and c.

If necessary, write your responses in simplified radical form.



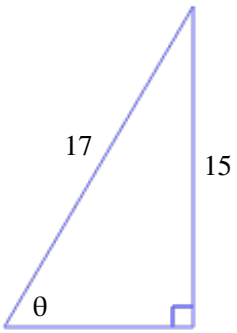


9. A right triangle has side lengths d, e, and f as shown below.
Use these lengths to find $\cos x$, $\sin x$, and $\tan x$.

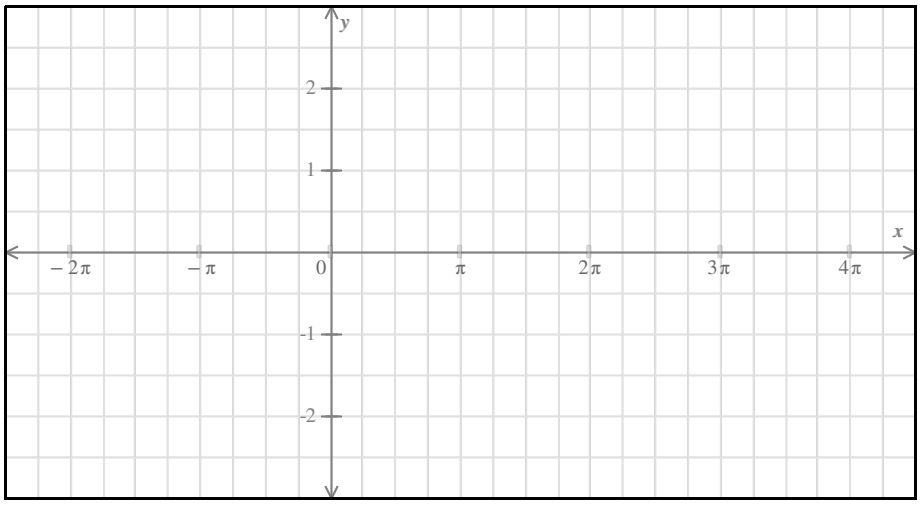


10. Find $\csc\theta$, $\sin\theta$, and $\cot\theta$, where θ is the angle shown in the figure.

Give exact values, not decimal approximations.



11. Graph the function $y = \sin\left(x + \frac{3\pi}{4}\right)$.



12. Find the period, phase shift, and amplitude of the function.

$$y = 2\sin\left(x - \frac{\pi}{4}\right) - 3$$

Give the exact values, not decimal approximations.

13. Find all solutions to the equation.

$$\sin\theta + 1 = 0$$

Write your answer in radians in terms of π.

Example: $\theta = \frac{\pi}{5} + 2k\pi, k \in \mathbb{Z}$ or $\theta = \frac{\pi}{7} + k\pi, k \in \mathbb{Z}$

14. Find all solutions of the equation in the interval $[0, 2\pi)$.

$$\cot\theta - 1 = 0$$

Write your answer in radians in terms of π.

15. Find all solutions of the equation in the interval $[0, 2\pi)$.

$$2\sin\theta + \sqrt{2} = 0$$

Write your answer in radians in terms of π.
If there is more than one solution, separate them with commas.

16. Find the exact value of $\tan^{-1}\left(\frac{\sqrt{3}}{3}\right)$.

Write your answer in radians in terms of π.

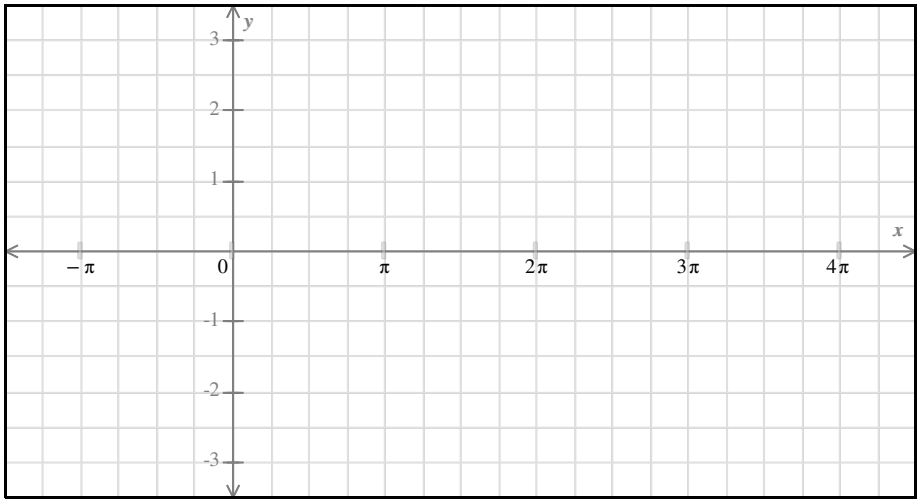
17. Find the amplitude and period of the function.

$$y = -\frac{3}{2}\cos 3x$$

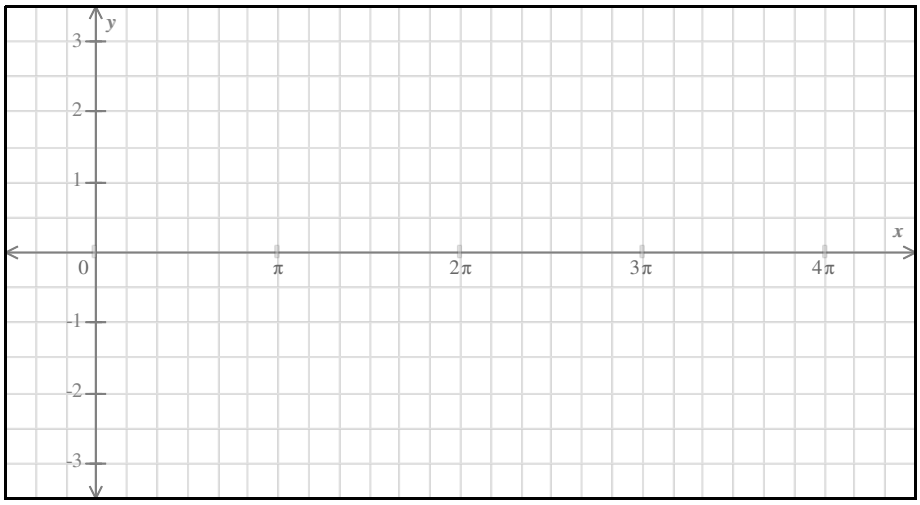
Give the exact values, not decimal approximations.

Amplitude:
Period:

18. Graph the function $y = 3\cos\left(\frac{2}{3}x + \frac{\pi}{2}\right)$.



19. Graph the function $y = \sin\left(\frac{3}{2}x\right)$.



20. Find the reference angle for $\frac{7\pi}{12}$.

21. Determine the quadrant in which the terminal side of θ lies.

(a)	$\cos\theta < 0$ and $\sin\theta > 0$
	quadrant {I, II, III, IV}
(b)	$\tan\theta < 0$ and $\cos\theta < 0$
	quadrant {I, II, III, IV}

22. Let $(-6, 8)$ be a point on the terminal side of θ.

Find the exact values of $\sin\theta$, $\sec\theta$, and $\tan\theta$.

23. Let θ be an angle in quadrant I such that $\tan\theta = \frac{5}{2}$.

Find the exact values of $\cos\theta$ and $\csc\theta$.

24. Let θ be an angle in quadrant I such that $\sin\theta = \frac{4}{5}$.

Find the exact values of $\sec\theta$ and $\tan\theta$.

Obj. 10 #5 Answers for class MATH 1050/1051 Fall 2018

1.

(a) $140\,^\circ$

(b) $\frac{3\pi}{5}$ radians

2. $(x, y) = (0, -1)$

3. $x = \frac{15}{17}$

4. $\sin 180\,^\circ = 0$

5.

$\csc 270\,^\circ = -1$

$\cot 270\,^\circ = 0$

6. $\sin \frac{23\pi}{4} = -\frac{\sqrt{2}}{2}$

$\cot(-540\,^\circ)$ Undefined

7.

$\sec\theta = \frac{17}{8}$

$\cos\theta = \frac{8}{17}$

$\tan\theta = \frac{15}{8}$

8. $b = 3\sqrt{2}$

$c = 3\sqrt{3}$

9. $\cos x = \frac{e}{f}$

$\sin x = \frac{d}{f}$

$\tan x = \frac{d}{e}$

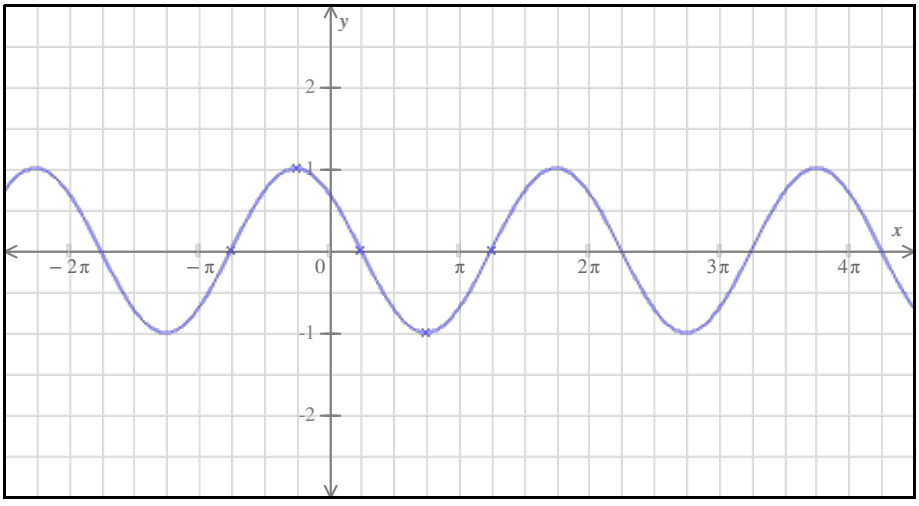
10.

$\csc \theta = \frac{17}{15}$

$\sin \theta = \frac{15}{17}$

$\cot \theta = \frac{8}{15}$

11.



12.

Period: 2π

Phase shift: $\frac{\pi}{4}$

Amplitude: 2

13. $\theta = \frac{3\pi}{2} + 2k\pi,\ k \in \mathbb{Z}$

14. $\theta = \frac{\pi}{4},\ \frac{5\pi}{4}$

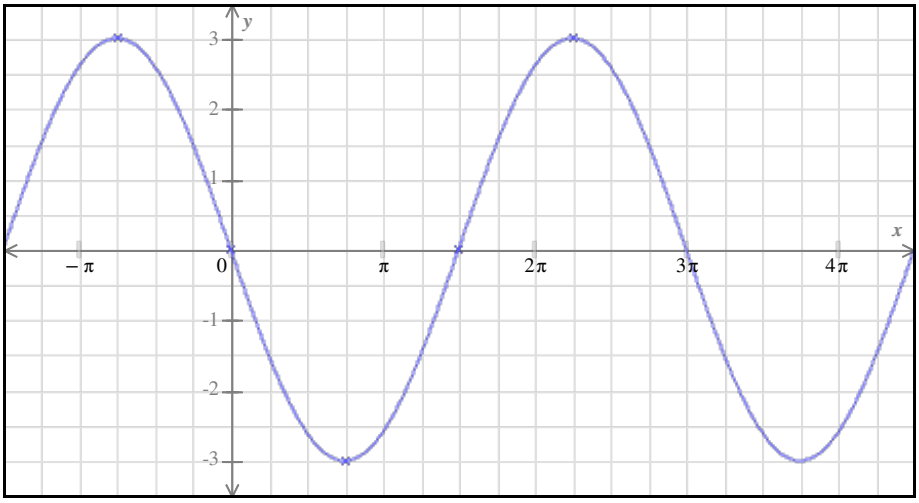
15. $\theta = \frac{5\pi}{4},\ \frac{7\pi}{4}$

16. $\tan^{-1}\left(\frac{\sqrt{3}}{3}\right) = \frac{\pi}{6}$

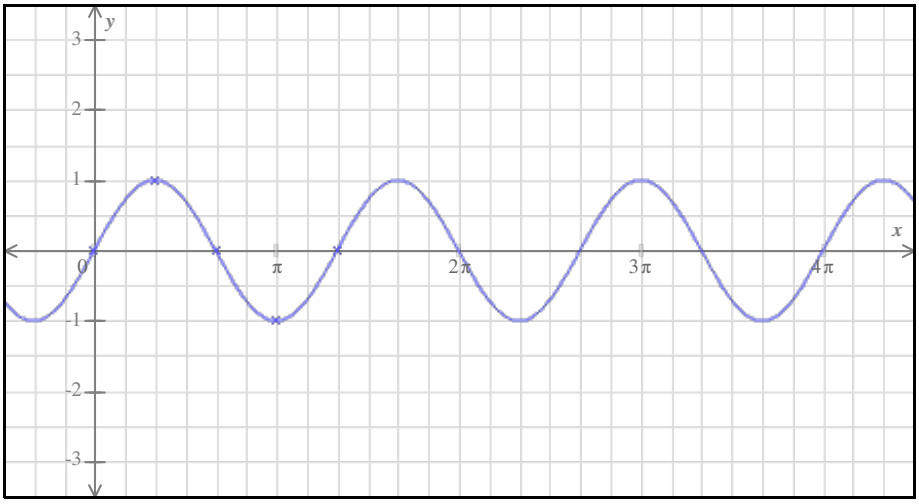
17. Amplitude: $\frac{3}{2}$

Period: $\frac{2\pi}{3}$

18.



19.



20. $\frac{5\pi}{12}$

21.

(a)	$\cos\theta < 0$ and $\sin\theta > 0$
	quadrant II
(b)	$\tan\theta < 0$ and $\cos\theta < 0$
	quadrant II

22.

$$\sin\theta = \frac{4}{5}$$

$$\sec\theta = -\frac{5}{3}$$

$$\tan\theta = -\frac{4}{3}$$

23.

$$\cos\theta = \frac{2\sqrt{29}}{29}$$

$$\csc\theta = \frac{\sqrt{29}}{5}$$

24.

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

$$\tan\theta = \frac{4}{3}$$