

Test Review
Module 3, Unit 7

Find the exact value or angle of each expression. Show all necessary work.

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

2. $\sin\left[\cos^{-1}\left(-\frac{1}{3}\right)\right]$

3. $\tan\left(\sin^{-1}\frac{5}{13}\right)$

4. $\sin^{-1}\left(\sin\frac{5\pi}{4}\right)$

5. $\cos^{-1}\left(-\frac{\sqrt{3}}{2}\right)$

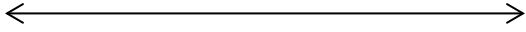
6. $\cot\left[\sin^{-1}\left(-\frac{3}{5}\right)\right]$

7. $\tan^{-1}\left(\tan\frac{5\pi}{6}\right)$

8. $\cos^{-1}\left(\cos\frac{2\pi}{3}\right)$

Graph **one period** of each function.

9. $y = -2\cos\left(\frac{x}{3} - \pi\right)$



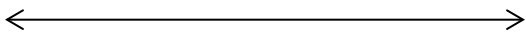
Amplitude: _____

Period: _____

Interval: _____

Phase Shift: _____

10. $y = 5\sin 2x + 3$

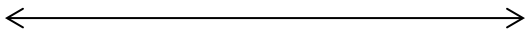


Amplitude: _____

Period: _____

Interval: _____

11. $y = 2\cos\left(\frac{\pi}{2}x - \frac{\pi}{2}\right) - 1$



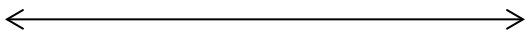
Amplitude: _____

Period: _____

Interval: _____

Phase Shift: _____

12. $y = 3\tan 2x$



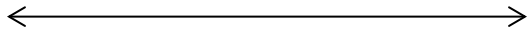
Critical Points: _____

Period: _____

Interval: _____

Asymptotes: _____

13. $y = -2 \tan\left(\frac{x}{4} + \frac{\pi}{2}\right)$



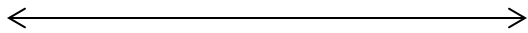
Critical Points: _____

Period: _____

Interval: _____

Asymptotes: _____

14. $y = 2 \csc 3x$

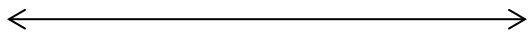


Amplitude: _____

Period: _____

Interval: _____

15. $y = -2 \sec\left(\frac{x}{3} - \pi\right)$



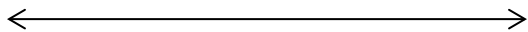
Amplitude: _____

Period: _____

Interval: _____

Phase Shift: _____

16. $y = \cot(2x - \pi)$



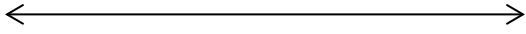
Critical Points: _____

Period: _____

Interval: _____

Asymptotes: _____

$$17. y = -\frac{1}{2} \cot \pi x$$



Critical Points: _____

Period: _____

Interval: _____

Asymptotes: _____

Verify the following identities.

$$18. \frac{1}{\sin x - 1} + \frac{1}{\sin x + 1} = -2 \tan x \sec x$$

$$19. 1 - \frac{\sin^2 \theta}{1 + \cos \theta} = \cos \theta$$

$$20. \sin y + \cot y \cos y = \csc y$$

$$21. \cot \theta + \frac{\sin \theta}{1 + \cos \theta} = \csc \theta$$

$$22. \frac{\cos x}{1 + \sin x} + \frac{1 + \sin x}{\cos x} = 2 \sec x$$

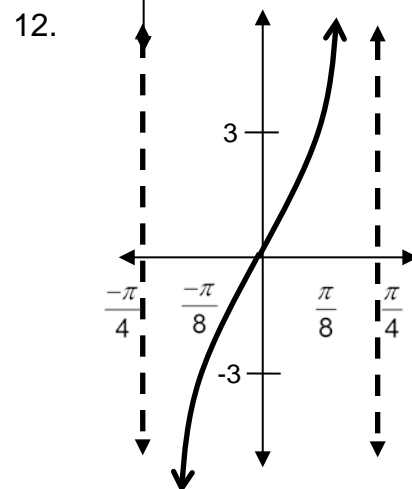
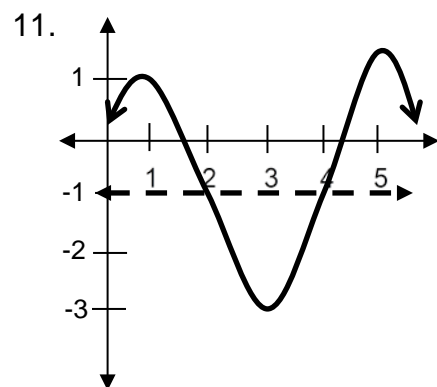
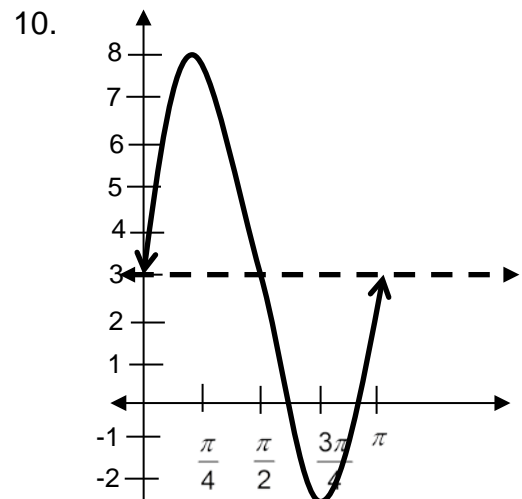
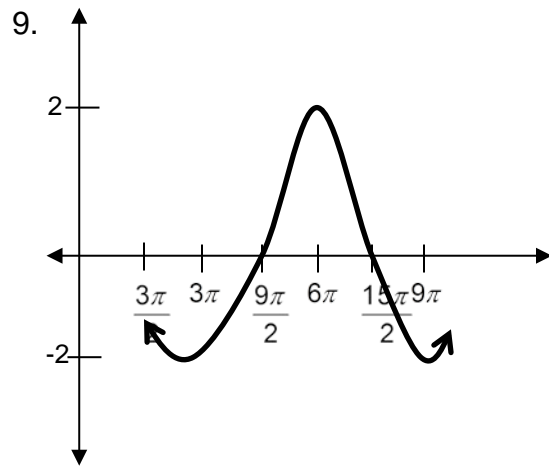
$$23. \sin x \tan x + \cos x = \sec x$$

24. $\sin^2 \theta(1 + \cot^2 \theta) = 1$

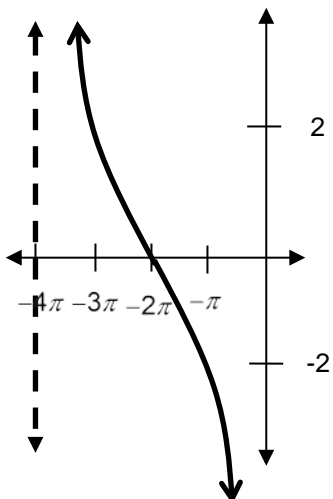
25. $\csc \theta + \cot \theta = \frac{\sin \theta}{1 - \cos \theta}$

Answers

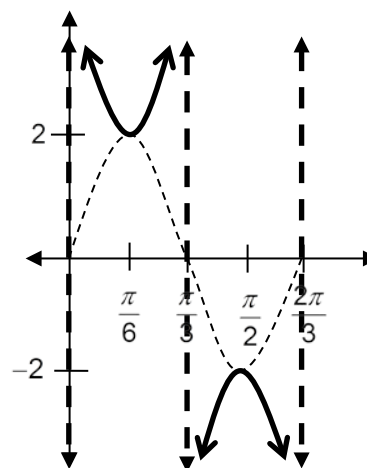
1. $-\frac{\pi}{6}$ 2. $\frac{2\sqrt{2}}{3}$ 3. $\frac{5}{12}$ 4. $-\frac{\pi}{4}$
 5. $\frac{5\pi}{6}$ 6. $-\frac{4}{3}$ 7. $-\frac{\pi}{6}$ 8. $\frac{2\pi}{3}$



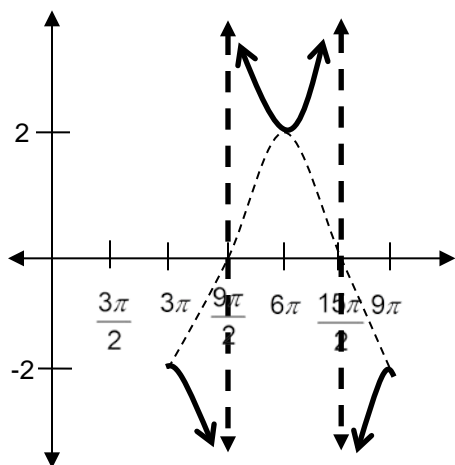
13.



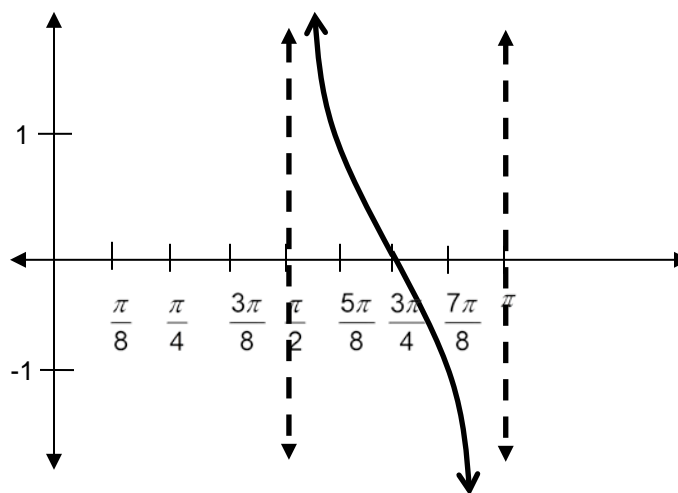
14.



15.



16.



17.

