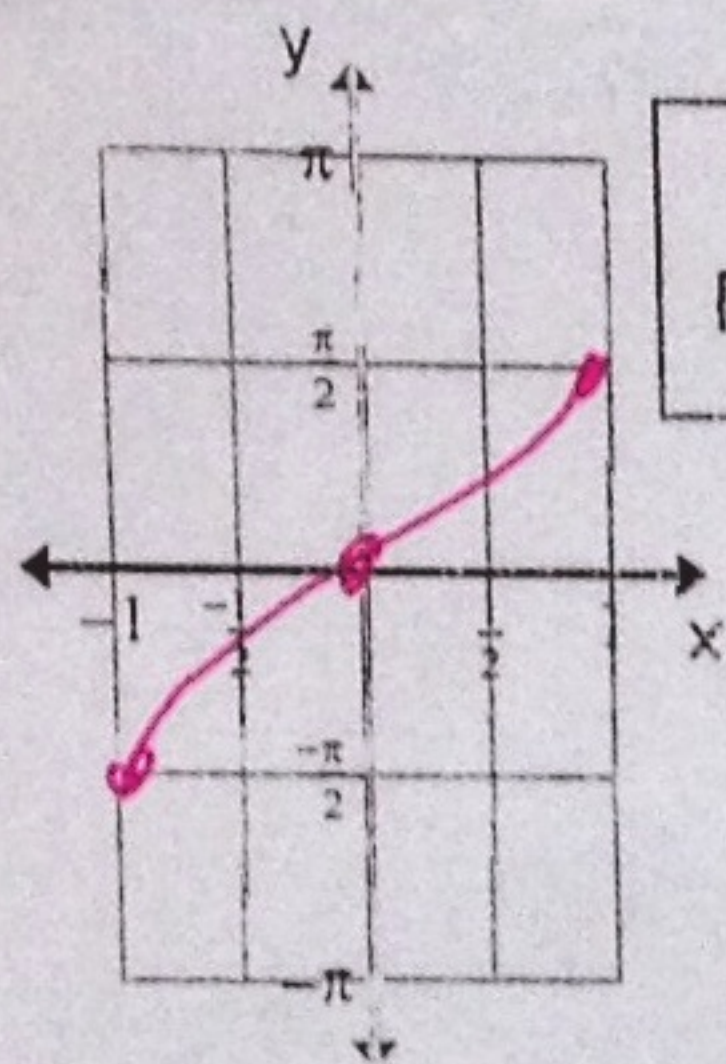


Complete each statement. Use the word bank help!!

1) $\tan^2 \theta + 1 = \sec^2 \theta$	2) $\frac{\sin \theta}{\cos \theta} = \tan \theta$	3) $\sec^2 \theta - \tan^2 \theta = 1$	4) $\tan \theta \cot \theta = 1$
5) $\frac{1}{\sec \theta} = \cos \theta$	6) $\frac{\cos \theta}{\sin \theta} = \cot \theta$	7) $\csc^2 \theta - 1 = \cot^2 \theta$	8) $\frac{1}{\cot \theta} = \tan \theta$
9) $1 - \cos^2 \theta = \sin^2 \theta$	10) $\frac{1}{\cos \theta} = \sec \theta$	11) $1 - \sin^2 \theta = \cos^2 \theta$	12) $\csc^2 \theta - \cot^2 \theta = 1$
13) $\sin^2 \theta + \cos^2 \theta = 1$	14) $\cos^{-1} \theta = \arccos \theta$	15) $\sec^2 \theta - 1 = \tan^2 \theta$	16) $\frac{1}{\tan \theta} = \cot \theta$

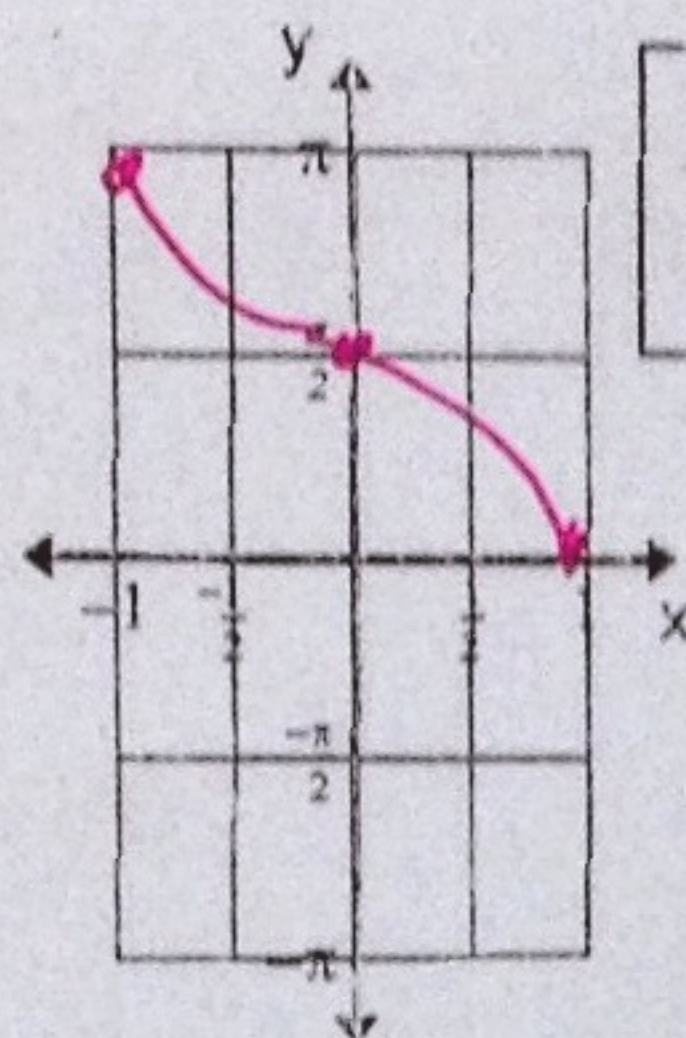
Graph each and give the range.

17. $y = \sin^{-1} x$



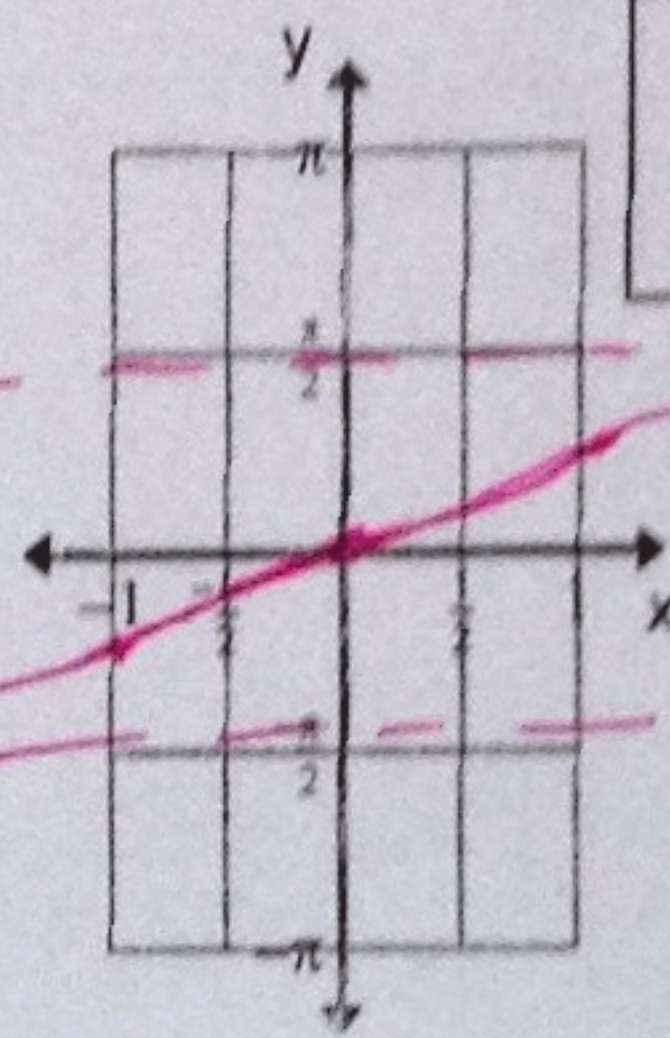
R: $[-\frac{\pi}{2}, \frac{\pi}{2}]$

18. $y = \arccos x$



R: $[0, \pi]$

19. $y = \tan^{-1} x$



R: $(-\frac{\pi}{2}, \frac{\pi}{2})$

Station IV:

Degrees

Evaluate each of the following...

1. $\cos^{-1}\left(-\frac{\sqrt{3}}{2}\right) = 150^\circ$ OR $\frac{5\pi}{6}$	2. $\sin^{-1}\left(-\frac{\sqrt{2}}{2}\right) = -45^\circ$ OR $-\frac{\pi}{4}$	3. $\tan^{-1}\left(-\frac{\sqrt{3}}{3}\right) = -30^\circ$ OR $-\frac{\pi}{6}$	4. $\cot^{-1}(-1) = 135^\circ$ OR $\frac{3\pi}{4}$
5. $\cos^{-1}(-1) = 180^\circ$ OR π	6. $\sin^{-1}(-1) = -90^\circ$ OR $-\frac{\pi}{2}$	7. $\sin^{-1}(0) = 0^\circ$ OR 0	8. $\cos^{-1}(0) = 90^\circ$ OR $\frac{\pi}{2}$

9. $\csc\left(\cos^{-1}\left(\frac{\sqrt{3}}{2}\right)\right) = 2$ $\csc(30^\circ)$	10. $\sin(\arccos(0)) = 1$ $\sin(90^\circ) = 1$	11. $\sec\left(\sin^{-1}\left(-\frac{1}{2}\right)\right) = \frac{2\sqrt{3}}{3}$ $\sec(-30^\circ)$	12. $\csc^{-1}\left(\cos\frac{2\pi}{3}\right)$ No solution
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Hint ... use a reference triangle!

13. $\cot\left(\tan^{-1}\left(\frac{1}{4}\right)\right) = 4$	14. $\tan\left(\sin^{-1}\left(-\frac{1}{3}\right)\right) = -\frac{\sqrt{2}}{4}$	15. $\sin\left(\sec^{-1}\left(-\frac{5}{3}\right)\right) = \frac{4}{5}$
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Station III:

Name

Kay

Per

Complete each proof:

1. $\sin^2 x \cdot \cos x \cdot \sec x = 1 - \cos^2 x$

$$\sin^2 x \cdot \cos x \cdot \frac{1}{\cos x} =$$

$$\sin^2 x =$$

$$1 - \cos^2 x =$$

2. $\tan x + \cot x = \sec x \cdot \csc x$

$$\frac{\sin x}{\cos x} + \frac{\cos x}{\sin x} =$$

$$\frac{\sin^2 x}{\cos x \sin x} + \frac{\cos^2 x}{\cos x \sin x} =$$

$$\frac{\sin^2 x + \cos^2 x}{\cos x \sin x} =$$

$$\frac{1}{\cos x \sin x} =$$

$$\sec x \cdot \csc x =$$

3. $(\csc x + \cot x)(1 - \cos x) = \sin x$

$$\csc x - \csc x \cos x + \cot x - \cot x \cos x$$
$$\frac{1}{\sin x} - \frac{\cos x}{\sin x} + \frac{\cos x}{\sin x} - \frac{\cos x \cdot \cos x}{\sin x}$$

$$\frac{1}{\sin x} - \frac{\cos^2 x}{\sin x} =$$

$$\frac{1 - \cos^2 x}{\sin x} =$$

$$\frac{\sin^2 x}{\sin x} =$$

$$\sin x =$$

4. $\cos^2 x + \cos^2 x \cdot \tan^2 x = 1$

$$\cos^2 x (1 + \tan^2 x) = 1$$

$$\cos^2 x (\sec^2 x) =$$

$$\cos^2 x \cdot \frac{1}{\cos^2 x} =$$

$$1 = 1$$