

## Inverse Trig Functions Notes

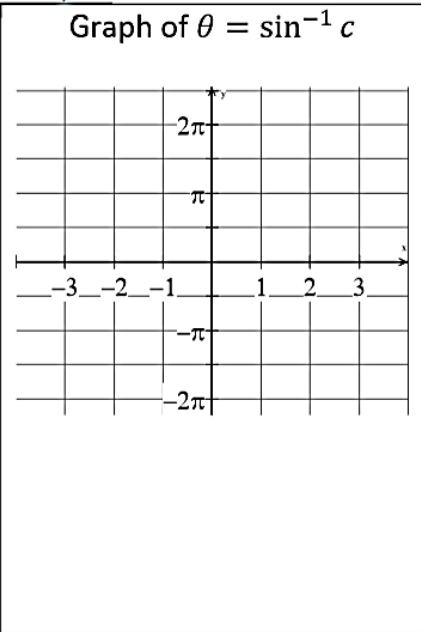
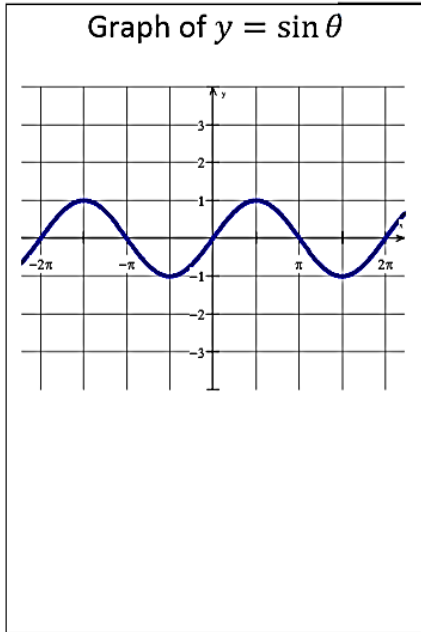
### Arcsine: (Sine Inverse)

$$\sin \theta = c$$

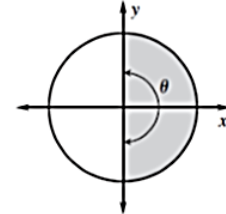


$$\sin^{-1} c =$$

**OR**  $\arcsin =$



Values of  $\theta$  used for arcsine:



Domain of arcsine:

Range of arcsine:

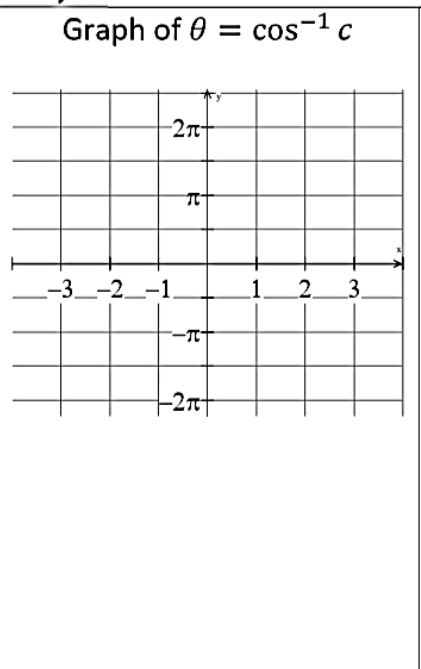
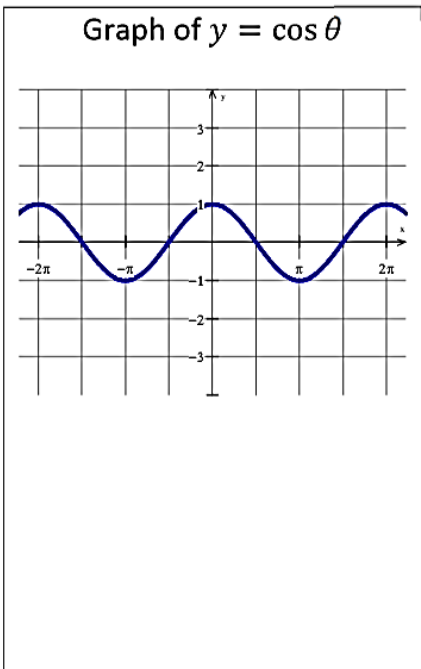
### Arccosine: (Cosine Inverse)

$$\cos \theta = c$$

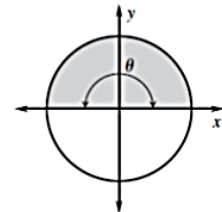


$$\cos^{-1} c = \theta$$

**OR**  $\arccos c = \theta$




Values of  $\theta$  used for arccosine:

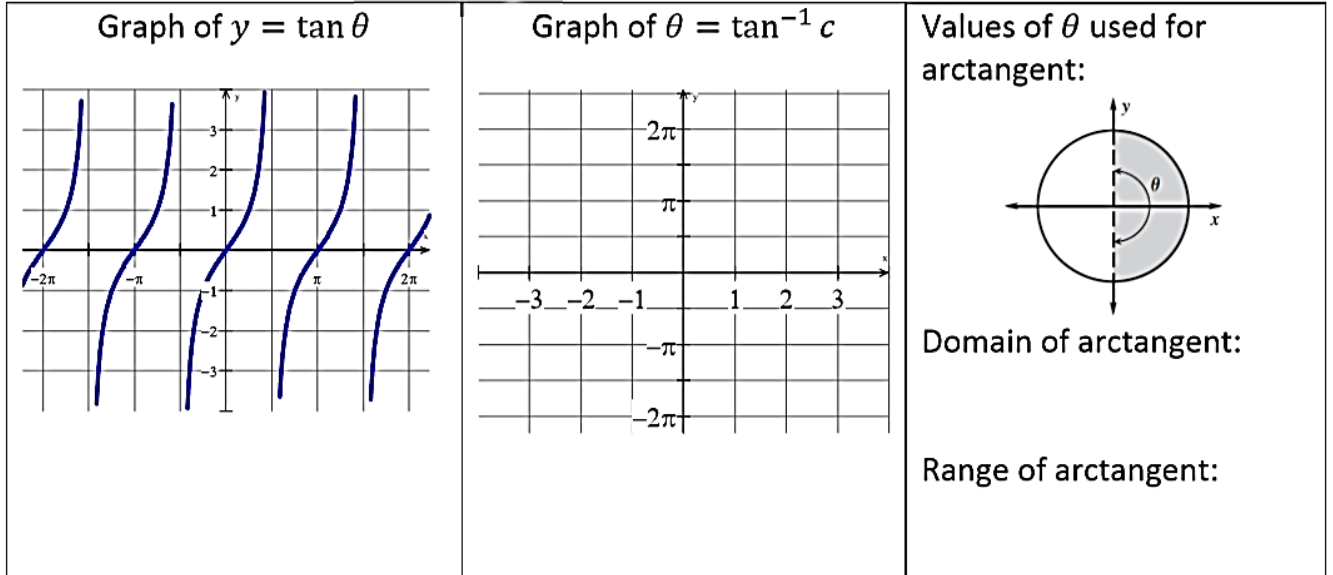


Domain of arccosine:

Range of arccosine:

**Arctangent: (Tangent Inverse)**

$\tan \theta = c$    $\tan^{-1} c = \theta$  **OR**  $\arctan c = \theta$



Find each value.

1.  $\arcsin\left(-\frac{\sqrt{2}}{2}\right)$  that angle whose sin is  $-\frac{\sqrt{2}}{2}$

2.  $\sin^{-1} 0$

3.  $\tan^{-1} \frac{\sqrt{3}}{3}$

4.  $\sin^{-1} 2$

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

6.  $\cos(\tan^{-1} \sqrt{3})$

7.  $\cot^{-1}(2)$

## Practice

|  |   |
|--|---|
| 1. $\sin^{-1}\left(\frac{1}{2}\right)$                       | 2. $\csc(20^\circ)$   |
| 3. $\operatorname{arcsec}(2)$                                | 4. $\cot\left(\frac{9}{2}\right)$                             |
| 5. $\cot^{-1}\left(\frac{9}{2}\right)$                       | 6. $\cos^{-1}(6)$   |
| 7. $\sin\left(\arcsin\left(\frac{1}{2}\right)\right)$        | 8. $\cos\left(\arcsin\left(\frac{1}{2}\right)\right)$         |
| 9. $\cos\left(\arccos\left(\frac{\sqrt{3}}{2}\right)\right)$ | 10. $\tan\left(\arcsin\left(\frac{\sqrt{3}}{2}\right)\right)$ |
| 11. $\tan\left(\sin^{-1}\left(\frac{5}{13}\right)\right)$    | 12. $\sec\left(\sin^{-1}\left(\frac{5}{7}\right)\right)$      |