Answer Key · Lesson 6.2: Inverse Cosine and Inverse Tangent

School Launch · Trigonometry · Unit 6 · Worksheet A · for the parent

Key

1. $\frac{2\pi}{3}$

Find the exact value in radians: $\cos^{-1}\left(-\frac{1}{2}\right)$.

2. $\frac{\pi}{2}$

Find the exact value in radians: $\cos^{-1}\left(0\right)$.

3. $\frac{\pi}{4}$

Find the exact value in radians: $\cos^{-1}\left(\frac{\sqrt{2}}{2}\right)$.

4. 0

1. Which angle in $[0, \pi]$ has $\cos = 1$?
2. $\cos\left(0\right) = 1$, so the answer is 0

Find the exact value in radians: $\cos^{-1}\left(1\right)$.

5. $-\frac{\pi}{3}$

1. Which angle in $\left(-\frac{\pi}{2}, \frac{\pi}{2}\right)$ has $\tan = -\sqrt{3}$?
2. $\tan\left(-\frac{\pi}{3}\right) = -\sqrt{3}$, so the answer is $-\frac{\pi}{3}$

Find the exact value in radians: $\tan^{-1}\left(-\sqrt{3}\right)$.

6. $\frac{5\pi}{6}$

1. Which angle in $[0, \pi]$ has $\cos = -\frac{\sqrt{3}}{2}$?
2. $\cos\left(\frac{5\pi}{6}\right) = -\frac{\sqrt{3}}{2}$, so the answer is $\frac{5\pi}{6}$

Find the exact value in radians: $\cos^{-1}\left(-\frac{\sqrt{3}}{2}\right)$.

7. $-\frac{\pi}{6}$

1. Which angle in $\left(-\frac{\pi}{2}, \frac{\pi}{2}\right)$ has $\tan = -\frac{\sqrt{3}}{3}$?
2. $\tan\left(-\frac{\pi}{6}\right) = -\frac{\sqrt{3}}{3}$, so the answer is $-\frac{\pi}{6}$

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

8. $\frac{\pi}{6}$

1. $-\frac{\pi}{6} \approx -0.524$ is outside $[0, \pi]$; $\cos -\frac{\pi}{6} = \frac{\sqrt{3}}{2}$
2. The angle in $[0, \pi]$ with that cos: $\frac{\pi}{6}$

Find the exact value in radians: $\cos^{-1}\left(\cos\left(-\frac{\pi}{6}\right)\right)$.

9. $\frac{\pi}{4}$

1. $-\frac{\pi}{4} \approx -0.785$ is outside $[0, \pi]$; $\cos -\frac{\pi}{4} = \frac{\sqrt{2}}{2}$
2. The angle in $[0, \pi]$ with that cos: $\frac{\pi}{4}$

Find the exact value in radians: $\cos^{-1}\left(\cos\left(-\frac{\pi}{4}\right)\right)$.

10. $\frac{2\pi}{3}$

1. $\frac{4\pi}{3} \approx 4.189$ is outside $[0, \pi]$; $\cos \frac{4\pi}{3} = -\frac{1}{2}$
2. The angle in $[0, \pi]$ with that cos: $\frac{2\pi}{3}$

Find the exact value in radians: $\cos^{-1}\left(\cos\left(\frac{4\pi}{3}\right)\right)$.