6.5 & 5.4: (Inverse Trigonometric Functions and Their Graphs)

If $\sec^{-1} 2 + \cos^{-1} x = \frac{\pi}{2}$, then $x =$ A) $\frac{1}{2}$ B) $-\frac{1}{2}$ C) 1 D) $\frac{\sqrt{3}}{2}$ E) $-\frac{\sqrt{3}}{2}$	Inverse Trigonometric Functions.
$\cos^{-1}\left(\cos\left(\frac{8\pi}{7}\right)\right) =$ A) $\frac{4\pi}{7}$ B) $\frac{5\pi}{11}$ C) $\frac{8\pi}{7}$ D) $\frac{6\pi}{7}$ E) $\frac{3\pi}{7}$	Inverse Trigonometric Functions.

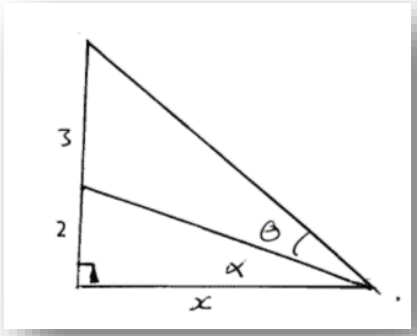
$\cos^{-1}\left(\sin\left(\frac{2\pi}{7}\right)\right) =$ A) $\frac{3\pi}{14}$ B) $\frac{\pi}{14}$ C) $\frac{5\pi}{14}$ D) $\frac{2\pi}{7}$ E) $\frac{3\pi}{7}$	Inverse Trigonometric Functions.
If $\sec\theta = -\frac{2\sqrt{3}}{3}$ and $\cot\theta = \sqrt{3}$, then a value of θ is A) 210° B) 240° C) 225° D) 150° E) 330°	Inverse Trigonometric Functions.
If $\csc\theta = -\frac{2\sqrt{3}}{3}$ and $\cot\theta = \frac{\sqrt{3}}{3}$, then a value of θ is A) 240° B) 210° C) 225° D) 330° E) 150°	Inverse Trigonometric Functions.

Which one of the following statements is TRUE? A) $\tan(\tan^{-1}(-11)) = -11$ B) $\tan^{-1}\left(\tan\frac{4\pi}{3}\right) = \frac{4\pi}{3}$ C) $\tan^{-1} x$ is an even function D) $\tan^{-1} x = \frac{\sin^{-1} x}{\cos^{-1} x}$ E) $\tan^{-1}(-1) = \frac{\pi}{4}$	Inverse Trigonometric Functions.
$\csc\left[\frac{\pi}{2} + \sin^{-1}\left(-\frac{3}{5}\right)\right] =$ A) $\frac{5}{4}$ B) $-\frac{3}{5}$ C) $\frac{3}{5}$ D) $-\frac{5}{4}$ E) $\frac{5}{3}$	Inverse Trigonometric Functions.
Which one of the following statements is TRUE? (a) $\sin^{-1}\left(\frac{\pi}{5}\right)$ is defined (b) $\tan(\tan^{-1} 100)$ is undefined (c) $\cos\left(\cos^{-1}\left(-\frac{1}{2}\right)\right) = \frac{1}{2}$ (d) $\tan^{-1} x = \frac{\sin^{-1} x}{\cos^{-1} x}$ (e) The functions $y = \cos^{-1} x$ and $y = \sin^{-1} x$ have the same range	Inverse Trigonometric Functions.

The exact value of $\sin^{-1}\left(\sin\frac{7\pi}{6}\right)+\tan\left(\cos^{-1}-\frac{1}{2}\right)$ is (a) $-\frac{\pi}{6}-\sqrt{3}$ (b) $\frac{7\pi}{6}+\frac{\sqrt{3}}{3}$ (c) $\frac{\pi}{6}+\sqrt{3}$ (d) $\frac{5\pi}{6}-1$ (e) $-\frac{\pi}{6}+\sqrt{3}$	Inverse Trigonometric Functions.
$\sin^{-1}\left(\cos\left(\frac{5\pi}{11}\right)\right)=$ A) $\frac{\pi}{22}$ B) $\frac{5\pi}{11}$ C) $\frac{20\pi}{11}$ D) $\frac{\pi}{11}$ E) $\frac{19\pi}{22}$	Inverse Trigonometric Functions.
If the domain of $f(x)=\pi+5\cos^{-1}\left(\frac{x}{2}+b\right)$ is $[3,7]$, then $2b+1=$ A) -4 B) -5 C) 4 D) 5 E) 6	Inverse Trigonometric Functions.

The exact value of $\cos^{-1}\left(\cos\frac{10\pi}{3}\right)$, is A) $\frac{2\pi}{3}$ B) $\frac{\pi}{3}$ C) $\frac{4\pi}{3}$ D) $\frac{10\pi}{3}$ E) undefined	Inverse Trigonometric Functions.
The range of $y = -\cos^{-1}(1-3x) - \pi$, is A) $[-2\pi, -\pi]$ B) $[\pi - 1, \pi + 1]$ C) $\left[-\frac{3\pi}{2}, -\frac{\pi}{2}\right]$ D) $\left[0, \frac{2}{3}\right]$ E) $\left[-\frac{3\pi}{2}, \frac{\pi}{2}\right]$	Inverse Trigonometric Functions.
The exact value of $\cos^{-1}\left[\cos\left(\frac{5\pi}{4}\right)\right]$ is A) $\frac{3\pi}{4}$ B) $\frac{\pi}{4}$ C) $\frac{5\pi}{4}$ D) $-\frac{\pi}{4}$ E) undefined	Inverse Trigonometric Functions.

$\cos^{-1}\left(-\frac{1}{2}\right) - \tan^{-1}\left(\frac{\sqrt{3}}{3}\right) =$ A) $\frac{\pi}{2}$ B) $\frac{3\pi}{2}$ C) $\frac{\pi}{3}$ D) $\frac{5\pi}{6}$ E) $\frac{7\pi}{4}$	Inverse Trigonometric Functions.
$\tan\left[\sin^{-1}\left(-\frac{5}{13}\right)\right] =$ A) $-\frac{5}{12}$ B) $-\frac{4}{5}$ C) $\frac{12}{5}$ D) $-\frac{12}{5}$ E) $\frac{5}{12}$	Inverse Trigonometric Functions.
The exact value of $\cos\left(\sin^{-1}\left(-\frac{3}{5}\right)\right)$ is equal to (a) $\frac{4}{5}$ (b) $-\frac{4}{5}$ (c) $\frac{3}{4}$ (d) $-\frac{3}{4}$ (e) $\frac{3}{5}$	Inverse Trigonometric Functions.

From the adjacent figure $\theta =$ A) $\tan^{-1}\left(\frac{5}{x}\right) - \tan^{-1}\left(\frac{2}{x}\right)$ B) $\frac{1}{5}\tan^{-1}\left(\frac{5}{x}\right)$ C) $\tan^{-1}\left(\frac{x}{5}\right)$ D) $\tan^{-1}\left(\frac{2}{x}\right)$ E) $\tan^{-1}\left(\frac{3}{x}\right) - \tan^{-1}\left(\frac{5}{x}\right)$ 	Inverse Trigonometric Functions.
$\tan^{-1}\left(\tan\frac{3\pi}{4}\right) =$ A) $-\frac{\pi}{4}$ B) $\frac{\pi}{4}$ C) $-\frac{3\pi}{4}$ D) $\frac{3\pi}{4}$ E) undefined	Inverse Trigonometric Functions.
Which one of the following statements is TRUE? A) $\tan^{-1}\left(\tan\frac{4\pi}{3}\right) = \tan^{-1}\left(\tan\frac{\pi}{3}\right)$ B) $\sin^{-1}\left(\sin\frac{5\pi}{6}\right) = \frac{5\pi}{6}$ C) $\tan^{-1}x = \left(\frac{\sin x}{\cos x}\right)^{-1}$ D) $\cos^{-1}(\cos x) = x$ for $-1 \le x \le 1$ E) $y = \sin^{-1}x$ is an even function.	Inverse Trigonometric Functions.

If $\arcsin\left(y-\frac{\pi}{3}\right)=\frac{\pi}{6}$, then y is equal to: A) $\frac{3+2\pi}{6}$ B) $\frac{3-2\pi}{6}$ C) $\frac{5\pi}{6}$ D) $-\frac{3\sqrt{3}+2\pi}{6}$ E) $-\frac{3\sqrt{3}}{6}$	Inverse Trigonometric Functions.
$\sin^{-1}\left[\sin\frac{3\pi}{5}\right]-\cos^{-1}\left[\cos\frac{3\pi}{5}\right]=$ A) $\frac{6\pi}{5}$ B) $-\frac{6\pi}{5}$ C) $\frac{\pi}{5}$ D) π E) $-\frac{\pi}{5}$	Inverse Trigonometric Functions.
$\tan^{-1}\left(\tan\frac{3\pi}{4}\right)+\sin\left(\sin^{-1}\frac{\pi}{4}\right)=$ A) 0 B) $-\frac{\pi}{2}$ C) $\frac{\pi}{2}$ D) $-\frac{\pi}{4}+\frac{\sqrt{2}}{2}$ E) π	Inverse Trigonometric Functions.

The domain D and the range R of the function $f(x) = \pi + \cos^{-1}(x-1)$ are A) $D = [0,2]$ and $R = [\pi, 2\pi]$ B) $D = [0,2]$ and $R = [0,2\pi]$ C) $D = [-1,1]$ and $R = [\pi, 2\pi]$ D) $D = [-1,1]$ and $R = [0,2\pi]$ E) $D = [0,2]$ and $R = [-\pi, \pi]$	Inverse Trigonometric Functions.
If the domain of the function $f(x) = \frac{\pi}{2} - 3\sin^{-1}(2x-3)$ is $[m,n]$. then $m + n =$ A) 3 B) 4 C) 2 D) $-\pi$ E) π	Inverse Trigonometric Functions.

$\sin^{-1}\left(\frac{3}{5}\right)+\cos^{-1}\left(-\frac{4}{5}\right)=$ A) $\frac{7}{5}$ B) $\frac{\pi}{2}$ C) π D) $\frac{-1}{5}$ E) $\frac{3\pi}{2}$	Inverse Trigonometric Functions.
$\cos^{-1}\left(\sin\frac{\pi}{5}\right)=$ A) $\frac{3\pi}{10}$ B) $\frac{3\pi}{20}$ C) $\frac{3\pi}{5}$ D) $\frac{\pi}{10}$ E) $\frac{2\pi}{5}$	Inverse Trigonometric Functions.
The value of $\cos^{-1}\frac{1}{2}+\sin^{-1}\left(\sin\frac{7\pi}{6}\right)$ A) $\frac{\pi}{6}$ B) $\frac{\pi}{2}$ C) $\frac{3\pi}{2}$ D) $\frac{4\pi}{3}$ E) π	Inverse Trigonometric Functions.

The range of the function $y = \frac{\pi}{2} + 2\cos^{-1}(x+1)$ is: A) $\left[\frac{\pi}{2}, \frac{5\pi}{2}\right]$ B) $[0, \pi]$ C) $[0,2]$ D) $\left[\frac{\pi}{2} - 1, \frac{\pi}{2} + 1\right]$ E) $\left[-\frac{\pi}{2}, \frac{3\pi}{2}\right]$	Inverse Trigonometric Functions.
If $\arctan\frac{\sqrt{3}}{3} = x$ and $\arccos\left(-\frac{1}{2}\right) = y$, then $x + y =$ A) $\frac{5\pi}{6}$ B) π C) $\frac{7\pi}{3}$ D) $\frac{4\pi}{3}$ E) $\frac{7\pi}{6}$	Inverse Trigonometric Functions.
The solution of the equation $\cos^{-1} x + \tan^{-1}\frac{5}{12} = \frac{\pi}{2}$ is A) $\frac{5}{13}$ B) $-\frac{12}{13}$ C) $\frac{13}{12}$ D) $-\frac{13}{5}$ E) $\frac{7}{12}$	Inverse Trigonometric Functions.

Which of the following statements is FALSE? A) the domain of $y = \cos^{-1}(x+1)$ is $[0,2]$ B) $\tan(\tan^{-1} x) = x$, for any real number x. C) the range of $y = 2\sin^{-1} x$ is $[-\pi, \pi]$ D) $\sin^{-1} x + \sin^{-1}(-x) = 0, -1 \le x \le 1$ E) $\cos^{-1}\left(\cos\frac{x}{2}\right) = \frac{x}{2}$ if $0 \le x \le 2\pi$	Inverse Trigonometric Functions.
The solution set of the equation $2\cos^{-1}\left(\frac{x-\pi}{3}\right) = 2\pi$ is A) $\{\pi - 3\}$ B) $\{\pi + 2\}$ C) $\{4 - \pi\}$ D) $\{2\pi - 3\}$ E) $\{\pi\}$	Inverse Trigonometric Functions.
The graph of the function $y = \frac{1}{3}\tan^{-1} 2x - \frac{\pi}{3}$ has A) range $= \left(-\frac{\pi}{2}, -\frac{\pi}{6}\right)$, domain $= (-\infty, \infty)$ B) range $= \left(\frac{\pi}{6}, \frac{\pi}{2}\right)$, domain $= (-\infty, \infty)$ C) range $= \left(-\frac{\pi}{2}, \frac{\pi}{2}\right)$, domain $= (-\infty, \infty)$ D) range $= \left(-\frac{\pi}{2}, \frac{\pi}{2}\right)$, domain $= [-1,1]$ E) range $= (-\infty, \infty)$, domain $= \left(-\frac{\pi}{2}, \frac{\pi}{2}\right)$	Inverse Trigonometric Functions.

The domain of the function $y = \frac{\pi}{2} + 2\sin^{-1}\left(\frac{3}{2}x - \frac{5}{2}\right)$, is A) $\left[1, \frac{7}{3}\right]$ B) $\left[\pi, \frac{7\pi}{3}\right]$ C) $\left(-\infty, \frac{-\pi+5}{3}\right] \cup \left[\frac{\pi+5}{3}, \infty\right)$ D) $\left[\frac{-\pi+5}{3}, \frac{\pi+5}{3}\right]$ E) $(-\infty, 1] \cup \left[\frac{7}{3}, \infty\right)$	Inverse Trigonometric Functions.
The range of the function $y = \frac{\pi}{3} + \frac{1}{2}\sin^{-1}\left(x - \frac{\pi}{3}\right)$ is: A) $\left[\frac{\pi}{12}, \frac{7\pi}{12}\right]$ B) $\left[\frac{\pi}{3} - \frac{1}{2}, \frac{\pi}{3} + \frac{1}{2}\right]$ C) $\left(-\infty, \frac{\pi}{3} - \frac{1}{2}\right] \cup \left[\frac{\pi}{3} + \frac{1}{2}, \infty\right)$ D) $\left[-\frac{\pi}{3}, \frac{\pi}{3}\right]$ E) $\left(-\infty, \frac{\pi}{12}\right] \cup \left[\frac{7\pi}{12}, \infty\right)$	Inverse Trigonometric Functions.