7.1: (Trigonometric Identities)

$\frac{\cos x - \cot x}{1 - \sin x}$ is identical to A) $\tan x$ B) $\cot x$ C) $-\tan x$ D) 0 E) $-\cot x$	Trigonometric Identities.
$\frac{\cos\theta}{1+\sin\theta} + \frac{1+\sin\theta}{\cos\theta} =$ A) $2\sec\theta$ B) $2\csc\theta$ C) $2\cos\theta$ D) $2\sin\theta$ E) $2\cot\theta$	Trigonometric Identities.
Which one of the following statements is TRUE? A) $\tan^2 x = \sin^2 x \tan^2 x + \sin^2 x$ B) $\tan^2 x = 1 + \sec^2 x$ C) $\tan^2 x = (\sec x + 1)^2$ D) $\tan^2 x = 1 - \cot^2 x$ E) $\tan^2 x = \frac{\sin^2 x}{\sin^2 x - 1}$	Trigonometric Identities.

If $A = \ln(\sec^2 x) - \ln(\tan^2 x)$, then $e^A - 1 =$ A) $\cot^2 x$ B) $\sec^2 x$ C) $\cos^2 x$ D) 0 E) 1	Trigonometric Identities.
The expression $\frac{\cos x}{1-\sin x} - \tan x$ simplifies to A) $\sec x$ B) $-\sec x$ C) $\csc x$ D) $-\csc x$ E) $2\tan x$	Trigonometric Identities.
$\ln\left(e^{\sin^2 x} e^{\cos^2 x}\right) =$ A) 1 B) 0 C) $e^{\sec x}$ D) $e^{\csc x}$ E) $2\cos x + 2\sin x$	Trigonometric Identities.

If $A = 3\sin^2\alpha + 3\cos^2\alpha$ and $B = 4\cot^2\alpha - 4\csc^2\alpha$, then $A + B =$ A) -1 B) 0 C) 7 D) 1 E) -7	Trigonometric Identities.
Th expression $\frac{\tan^2 x}{1+\sec x}$ is identical to A) $\frac{1-\cos x}{\cos x}$ B) $\frac{1-\cos x}{\sin x}$ C) $\frac{1-\sin x}{\sin x}$ D) $\frac{1+\cos x}{\cos x}$ E) $\frac{1+\sin x}{\sin x}$	Trigonometric Identities.
If $\frac{(\tan x+\cot x)^2}{\sin^2 x-\sin^4 x} = \sec^m x\csc^n x$, then $m + n =$ A) 8 B) 6 C) 4 D) 10 E) 12	Trigonometric Identities.

$\frac{\cot\theta-\tan\theta}{\sin\theta\cos\theta}$ is identical to: A) $\csc^2\theta-\sec^2\theta$ B) $\sec^2\theta-\csc^2\theta$ C) $1-\sec^2\theta$ D) $\sec\theta+\csc\theta$ E) $1-\csc^2\theta$	Trigonometric Identities.
If $\pi<\theta<\frac{3\pi}{2}$, then $\cos\theta=$ A) $-\frac{\cot\theta\sqrt{1+\cot^2\theta}}{1+\cot^2\theta}$ B) $\frac{\cot\theta\sqrt{1+\cot^2\theta}}{1+\cot^2\theta}$ C) $-\sqrt{1+\cot^2\theta}$ D) $\frac{\sqrt{1+\cot^2\theta}}{1+\cot^2\theta}$ E) $-\frac{\sqrt{1+\cot^2\theta}}{1+\cot^2\theta}$	Trigonometric Identities.
$\frac{1+\cot^2\theta}{1-\csc^2\theta}=$ A) $-\sec^2\theta$ B) $\sec^2\theta-2$ C) $-\csc^2\theta$ D) $\csc^2\theta-2$ E) $-\csc^2\theta-\sec^2\theta$	Trigonometric Identities.

The expression $\frac{1}{1+\csc x} - \frac{1}{1+\csc(-x)}$ simplifies to A) $2\sin x \sec^2 x$ B) 0 C) $-2\sin x \sec^2 x$ D) $-2\tan^2 x$ E) 2	Trigonometric Identities.
If $\frac{\sec x+\csc x}{\tan x+\cot x} = a\sin x + b\cos x$, then $a + b =$ A) 2 B) 1 C) 3 D) 4 E) 0	Trigonometric Identities.
$\tan\theta + \frac{1}{\sec\theta + \tan\theta} =$ A) $\sec\theta$ B) $\cos\theta$ C) $1 + \sin\theta$ D) 1 E) $\sin\theta$	Trigonometric Identities.

$(\sin^2 x)(1+\cot x)+(\cos^2 x)(1-\tan x)+\cot^2 x =$ A) $\csc^2 x$ B) $\sec^2 x$ C) $\tan^2 x$ D) $\cot^2 x$ E) $\cos^2 x$	Trigonometric Identities.
$\tan^2(-x)-\sin^2(-x)-\cos^2(x) =$ A) $-1+\tan^2 x$ B) $\sec^2 x$ C) $1+\cot^2 x$ D) $\csc^2 x$ E) $\sin^2 x-\cos^2 x$	Trigonometric Identities.
$(\cot x-\csc x)^2 =$ A) $\frac{1-\cos x}{1+\cos x}$ B) $\frac{1+\cos x}{1-\cos x}$ C) $\frac{\cos x-\sin x}{1+\cos x}$ D) $\frac{\sin x}{1-\cos x}$ E) $\frac{\cos x}{1+\cos x}$	Trigonometric Identities.

$\frac{\tan x-\cot x}{\tan x+\cot x}$ is identical to A) $1-2\cos^2 x$ B) $1-\tan^2 x$ C) $1+\sec^2 x$ D) $1+2\sin^2 x$ E) $1+2\cos^2 x$	Trigonometric Identities.
Which one of the following statements is TRUE? A) $\sin x=\sqrt{1-\cos^2 x}$, if $0\le x\le \pi$. B) $\csc x=\sqrt{1+\cot^2 x}$ C) $\sqrt{\cos^2 x}=\cos x$ is an identity. D) $\sin^3 x=\sin x(1+\cos^2 x)$ E) $\cos^4 x+1=(\cos^2 x-1)(\cos^2 x+1)$	Trigonometric Identities.
$\sin^3\theta+\cos^3\theta+\sin\theta\cos^2\theta+\sin^2\theta\cos\theta=$ A) $\sin\theta+\cos\theta$ B) $\sin\theta-\cos\theta$ C) $\cos\theta-\sin\theta$ D) $2(\sin\theta+\cos\theta)$ E) $2\sin\theta\cos\theta$	Trigonometric Identities.
$\sec^2 x-2\sec x\tan x+\tan^2 x=$ A) $\frac{1-\sin x}{1+\sin x}$ B) $\frac{1+\sin x}{1-\sin x}$ C) $\frac{1+\tan x}{1-\tan x}$ D) $\frac{1-\cos x}{1+\cos x}$ E) $\frac{1+\cos x}{1-\cos x}$	Trigonometric Identities.

If $\csc\theta = \frac{x+1}{x}, x > 0$, then $\cot\theta =$ A) $\frac{\sqrt{1+2x}}{x}$ B) $\frac{\sqrt{2x-1}}{x}$ C) $\frac{\sqrt{x^2+2x}}{x}$ D) $\frac{\sqrt{2x^2+2x+1}}{x}$ E) $\frac{1}{x}$	Trigonometric Identities.
If $(\tan x \sin x)^2 = A\tan^2 x + B\sin^2 x$ is an identity, then $A + B =$ A) 0 B) -2 C) 2 D) 1 E) -1	Trigonometric Identities.
$2\csc^2 x - 2\csc x\cot x - 1 =$ A) $\frac{1-\cos x}{1+\cos x}$ B) $\frac{1+\cos x}{1-\cos x}$ C) $\frac{1-\sin x}{1+\cos x}$ D) $\frac{1+\sin x}{1-\cos x}$ E) $\frac{\cos x-1}{\sin x+1}$	Trigonometric Identities.

$(\sin\theta + \csc\theta)^2 + (\cos\theta + \sec\theta)^2 - \tan^2\theta - \cot^2\theta =$ A) 7 B) 3 C) 5 D) 0 E) 1	Trigonometric Identities.
$\frac{2\tan x\cos^2 x - \tan x}{1 - \tan^2 x} =$ A) $\sin x\cos x$ B) $\cos^2 x$ C) $-\cot x\sin^2 x$ D) $\cot x\sin^2 x$ E) $-\sec x\csc^2 x$	Trigonometric Identities.
$\tan^2\frac{25\pi}{3} - \sec^2 60° + 1 =$ A) 0 B) $\frac{3}{2}$ C) $\frac{7}{4}$ D) $\frac{3}{4}$ E) 2	Trigonometric Identities.

$(\csc^2 x)(1+\cos x)^2 =$ A) $\frac{\sec x \csc x+1}{\sec x \csc x-1}$ B) $\frac{\sec x+\csc x}{\sec x-\csc x}$ C) $\frac{\sec x+1}{\sec x-1}$ D) $\frac{1}{\sec x-1}$ E) $\frac{\sec x+1}{\sec x}$	Trigonometric Identities.
$\frac{\cot^2 \theta}{1+\csc \theta} =$ A) $\cos\theta - \sin\theta$ B) $\frac{1+\cos\theta}{\sin\theta}$ C) $\frac{1+\sin\theta}{\sin\theta}$ D) $\frac{1-\sin\theta}{\sin\theta}$ E) $\frac{1-\cos\theta}{\cos\theta}$	Trigonometric Identities.
$\frac{\sin x(\tan x+1)-2\tan x\cos x}{\sin x-\cos x} =$ A) $-\tan x$ B) $\tan x$ C) $\sec x$ D) $-\sec x$ E) $\sin x$	Trigonometric Identities.

$\frac{1}{1+\cos x}-\frac{1}{1-\cos x}=$ A) $-2\cot x\csc x$ B) $2\tan x\csc x$ C) $2\tan x\sec x$ D) $-2\cot x\sec x$ E) -2	Trigonometric Identities.
$\frac{\cot x+\csc x}{\sin x+\tan x}$ simplifies to: A) $\csc x\cot x$ B) $\sin x\tan x$ C) $\sin x\cos x$ D) $\sec^2 x\tan x$ E) $\sin x\sec^2 x$	Trigonometric Identities.
$\frac{2\sec\theta\csc\theta-2\tan\theta\csc\theta}{(\sec\theta-\tan\theta)^2+1}=$ A) $\cot\theta$ B) $\tan\theta$ C) $2\sec\theta$ D) $2\csc\theta$ E) $2\sec\theta\tan\theta$	Trigonometric Identities.

$\tan^2 x(1+\cot^2 x) =$ A) $\frac{1}{1-\sin^2 x}$ B) $\frac{1}{1-\cos^2 x}$ C) $\csc^2 x$ D) $-\sec^2 x$ E) $-\csc^2 x$	Trigonometric Identities.
When simplified, the expression $(2\sin x+\cos x)^2+(2\cos x-\sin x)^2-5$ is equal A) 0 B) -5 C) 1 D) $8\sin x\cos x$ E) $3\sin^2 x+5\cos^2 x-5$	Trigonometric Identities.
The expression $\frac{\sin\theta}{1-\cot\theta}+\frac{\cos\theta}{1-\tan\theta}$ simplifies to: A) $\sin\theta+\cos\theta$ B) $\sin\theta-\cos\theta$ C) $\frac{1}{\sin\theta-\cos\theta}$ D) $\cos\theta-\sin\theta$ E) $\frac{1}{\cos\theta-\sin\theta}$	Trigonometric Identities.

$\frac{\cos x - \cot x}{1 - \sin x}$ is identical to A) $\tan x$ B) $\cot x$ C) $-\tan x$ D) 0 E) $-\cot x$	Trigonometric Identities.
The expression $(\sin\theta - \cos\theta)(\csc\theta + \sec\theta)$ simplifies to A) $\tan\theta - \cot\theta$ B) $\sec\theta - \tan\theta$ C) $\csc\theta\cot\theta$ D) 1 E) 0	Trigonometric Identities.
$\frac{\sin^3\theta}{1-\cos\theta} - \frac{\cos^3\theta}{1-\sin\theta} =$ (a) $\sin\theta - \cos\theta$ (b) $\sin\theta\cos\theta$ (c) $\sin\theta + \cos\theta$ (d) $2\sin\theta$ (e) $2\cos\theta$	Trigonometric Identities.
Which one of the following statements is FALSE? A) $\sec\left(\frac{\pi}{2} + x\right) = \csc x$ B) $\tan\left(x - \frac{\pi}{2}\right) = -\cot x$ C) $\sin\left(\frac{\pi}{2} + x\right) = \cos x$ D) $\sin\left(\frac{\pi}{2} - x\right) = \cos x$ E) $\cos\left(\frac{\pi}{2} - x\right) = \sin(\pi - x)$`	Co-function Identities.

$\cos\left(\frac{\pi}{2} - \sin^{-1}\left(-\frac{\sqrt{3}}{2}\right)\right) =$ A) $-\frac{1}{2}$ B) $\frac{1}{2}$ C) $-\frac{\sqrt{3}}{2}$ D) $\frac{\sqrt{3}}{2}$ E) $-\frac{\sqrt{2}}{2}$	Co-function Identities.
If $\sec(\theta + 10°) = \csc(2\theta - 40°)$, then one value of θ is: A) 40° B) 20° C) 30° D) 50° E) $\frac{140°}{3}$	Co-function Identities.
A value of angle θ that makes $\csc(3\theta - 15°) = \sec(2\theta + 25°)$ true is A) 16° B) 15° C) 20° D) 26° E) 10°	Co-function Identities.