ANSWERS

Math 36

Test 3 Pretest, Chapters 5 and 6

1. For each item in Column I, give the letter of the item in Column II that is equivalent to it.

Work is not required for these. Here I show all of the steps:

Answer		Column I	Column II	
i	A.	$\frac{\csc\theta}{\sec\theta} = \csc\theta\cdot\cos\theta = \frac{1}{\sin\theta}\cdot\cos\theta = \frac{\cos\theta}{\sin\theta} = \boxed{\cot\theta}$	a.	$\sec^2\theta$
a	B.	$\sec\theta\tan\theta\csc\theta = \frac{1}{\cos\theta}\cdot\frac{\sin\theta}{\cos\theta}\cdot\frac{1}{\sin\theta} = \frac{1}{\cos^2\theta} = \boxed{\sec^2\theta}$	b.	$\tan^2\theta$
e	C.	$\sin\theta\cot\theta + \cos\theta = \sin\theta\cdot\frac{\cos\theta}{\sin\theta} + \cos\theta = \cos\theta + \cos\theta = \boxed{2\cos\theta}$	c.	$\sin(2\theta)$
c	D.	$\frac{2\tan\theta}{\sec^2\theta} = 2\cdot\tan\theta\cdot\cos^2\theta = 2\cdot\frac{\sin\theta}{\cos\theta}\cdot\frac{\cos^2\theta}{1} = 2\sin\theta\cdot\cos\theta = \boxed{\sin(2\theta)}$	d.	$\cos\theta$
b	E.	$(\sec\theta - 1)(\sec\theta + 1) = \sec^2\theta - 1 = \boxed{\tan^2\theta}$	e.	$2\cos\theta$
d	F.	$\sec\theta - \tan\theta\sin\theta = \frac{1}{\cos\theta} - \frac{\sin\theta}{\cos\theta}\cdot\frac{\sin\theta}{1} = \frac{1}{\cos\theta} - \frac{\sin^2\theta}{\cos\theta} = \frac{1-\sin^2\theta}{\cos\theta} = \frac{\cos^2\theta}{\cos\theta} = \boxed{\cos\theta}$	f.	$\sin^2\theta$
			g.	$\csc\theta$
			h.	$\cos^2\theta$
			i.	$\cot\theta$
			j.	$\cos(2\theta)$

2. Using the sum, difference, double angle, or half angle formulas, evaluate the following.

a) $\cos(35°)\cos(115°) - \sin(35°)\sin(115°)$

this fits the pattern of $\cos(A+B)$

$= \cos(35° + 115°)$

$= \cos(150°) = \boxed{-\frac{\sqrt{3}}{2}}$

b) $1 - 2\sin^2\left(\overset{A}{\frac{3\pi}{8}}\right)$

this fits the pattern of $\cos(2A)$

$= \cos\left(2\cdot\overset{A}{\frac{3\pi}{8}}\right)$

$= \cos\left(\frac{3\pi}{4}\right) = \boxed{-\frac{\sqrt{2}}{2}}$

c) $\cos\left(\frac{5\pi}{12}\right)\sin\left(\frac{\pi}{12}\right) - \sin\left(\frac{5\pi}{12}\right)\cos\left(\frac{\pi}{12}\right)$

this (almost) fits the pattern of $\sin(A-B)$. 1st, interchange the first two functions:

$= \sin\left(\frac{\pi}{12}\right)\cos\left(\frac{5\pi}{12}\right) - \sin\left(\frac{5\pi}{12}\right)\cos\left(\frac{\pi}{12}\right)$

$= \sin\left(\frac{\pi}{12} - \frac{5\pi}{12}\right) = \sin\left(-\frac{4\pi}{12}\right)$

$= \sin\left(-\frac{\pi}{3}\right)$

$= \boxed{-\frac{\sqrt{3}}{2}}$

d) $\sin(105°)\cos(105°)$

This is almost the pattern of $\sin(2A)$, but it is missing the 2. We first must provide that ourselves:

$= \frac{1}{2}\cdot \underline{2\cdot\sin(105°)\cos(105°)}$

$= \frac{1}{2}\sin(2\cdot 105°)$

$= \frac{1}{2}\sin(210°) = \frac{1}{2}\cdot\frac{-1}{2} = \boxed{-\frac{1}{4}}$