Ch. 7 Identities Review **Show work!** NAME:

No Calculator!

1) Solve the following for x, in terms of π, where $0° \le x < 360°$

$\sin x - 2\sin x \cos x = 0$

2) Find *all* values of θ in the interval $0° \le \theta < 360°$ that satisfy the equation $\cos 2\theta - \cos\theta = 0$.

3) Find *all* values of θ in the interval $0° \le \theta < 360°$ that satisfy the equation $\sin 2\theta + \cos\theta = 0$.

4) If x is a positive acute angle, solve $6\tan x - 2\sqrt{3} = 0$ to the nearest degree.

5) If x is a positive acute angle, solve $4\sin x - 2\sqrt{2} = 0$ to the nearest degree.

6) Given $2\tan x + 2 = 0$, solve for x, to the nearest degree, in the interval $0 \le x < 360$.

7) Given $2\tan x + 2\sqrt{3} = 0$, solve for x, to the nearest degree, in the interval $0 \le x < 360$.

8) What are *all* values of θ in the interval $0° \le \theta < 360°$ that satisfy the equation $2\cos^2\theta - 3\cos\theta + 1 = 0$?

9) Find, to the nearest degree, the solution set of $4\cos^2 x - 1 = 0$ in the interval between $0°$ and $360°$.

10) Express $\cos^2\theta + \sin^2\theta + \tan^2\theta$ as a single trigonometric function.

11) Express $\dfrac{\cos^2\theta}{1-\cos^2\theta}$ as a single trigonometric function.

12) Express $\csc\theta - \cot\theta\cos\theta$ as a single trigonometric function.

13) Transform $\cos\theta\csc\theta\tan\theta - \sin^2\theta$ into an equivalent expression in terms of the trigonometric function $\cos\theta$.

14) Simplify: $\tan^2\theta\cos^2\theta + \cos^2\theta$

15) If $\tan A = \frac{2}{3}$ and $\tan B = \frac{1}{2}$, what is the value of $\tan(A+B)$?

16) The expression $\dfrac{\sec\theta}{\tan\theta}$ is equivalent to

A) $\csc\theta$ C) $\sin\theta$
B) $\cos\theta$ D) $\sec\theta$

17) The expression $\sin\theta(\cot\theta - \csc\theta)$ is equivalent to

A) $-\sin\theta$ C) $\cos\theta - 1$
B) $\cos\theta - \sin^2\theta$ D) $2\cos\theta$

18) For all values of θ for which the expression is defined, $\dfrac{\sec\theta}{\csc\theta}$ is equivalent to

A) $\cot\theta$ C) $\cos\theta$
B) $\sin\theta$ D) $\tan\theta$

19) The expression $\sec^2\theta + \csc^2\theta$ is equivalent to

A) $\sin^2\theta\cos^2\theta$ C) $\dfrac{1}{\sin^2\theta\cos^2\theta}$
B) $1 - \tan^2\theta$ D) $1 + \tan^2\theta$

20) The expression $\cos 70°\cos 10° + \sin 70°\sin 10°$ is equivalent to

A) $\sin 60°$ C) $\sin 80°$
B) $\cos 60°$ D) $\cos 80°$

21) The expression $\sin 50°\cos 40° + \cos 50°\sin 40°$ is equivalent to

A) $\cos 10°$ C) $\sin 90°$
B) $\cos 90°$ D) $\sin 10°$

22) Since $\sin 75° = \sin(30° + 45°)$, then $\sin 75°$ equals

A) $\dfrac{\sqrt{6}-\sqrt{2}}{4}$ C) $\dfrac{\sqrt{2}+\sqrt{6}}{4}$
B) $\dfrac{-\sqrt{2}-\sqrt{6}}{4}$ D) $\dfrac{-\sqrt{6}+\sqrt{2}}{4}$

23) The expression $\tan(180° - y)$ is equivalent to

A) $-\tan y$ C) $\dfrac{-\tan y}{1+\tan y}$
B) -1 D) $\dfrac{1-\tan y}{1+\tan y}$

24) The expression $\sec x \sin 2x$ is equivalent to

25) The expression $\dfrac{\sin 2A}{2\cos^2 A}$ is equivalent to

26) The expression $\dfrac{1+\cos 2x}{\sin 2x}$ is equivalent to

27) The expression $\cos 2A - \cos^2 A$ is equivalent to

28) If $\angle A$ and $\angle B$ are acute angles, $\sin A = \frac{4}{5}$, and $\cos B = \frac{5}{13}$, what is the value of $\sin(A+B)$?

29) If $\sin A = \frac{3}{5}$, find $\cos 2A$.

30) If $\cos\theta = -\frac{3}{5}$, find $\cos 2\theta$ and express in simplest form.

31) Find the value of $\tan 2A$ if $\tan A = -\sqrt{6}$.

32) If A is a positive acute angle and $\cos A = \frac{7}{9}$, find the value of $\sin\frac{A}{2}$.

33) If A is a positive acute angle and $\cos A = \frac{1}{5}$, find the value of $\cos\frac{A}{2}$.

CHECK ANSWERS #1-9	CHECK ANSWERS #10-15, 24-33	CHECK ANSWERS #16-23
0 0 0 30 45 60 60 60 90 120	$\sin\theta$ $2\sin x$ $-\sin^2 A$ $\cos^2\theta$ $\frac{-7}{25}$ $\frac{7}{4}$ $\frac{7}{25}$ $\frac{1}{3}$	A A B C C C C D
120 120 135 180 210 240 240	$\tan A$ $\sec^2\theta$ $\cot x$ $\cot^2\theta$	
270 300 300 300 300 315 330	1 $\frac{56}{65}$ $\frac{2\sqrt{6}}{5}$ $\frac{\sqrt{15}}{5}$	