

Precalc 5 TEST

Name: _____

Must show work for credit

Use the basic identities to simplify the expression.

1.) $\tan x \cos x$

=

2.) $\sec x \sin\left(\frac{\pi}{2} - x\right)$

=

3.) $\cos x - \cos^3 x$

=

4.) $\frac{1 + \tan^2 x}{\csc^2 x}$

=

Use the identities to change the expression to one involving only sine and cosine.

$$5) (\sin \theta) / (\tan \theta + \cot \theta)$$

=

$$6) \sin x \cos x \tan x \sec x \csc x$$

=

$$7) \frac{\tan x}{\csc^2 x} + \frac{\tan x}{\sec^2 x}$$

=

(2)

Prove the Identity

$$8.) (\cos x)(\tan x + \sin x \cot x) = \sin x + \cos^2 x$$

= _____

$$9.) \frac{(1 - \cos \theta)(1 + \cos \theta)}{\cos^2 \theta} = \tan^2 \theta$$

= _____

$$10.) \frac{\cos^2 x - 1}{\cos x} = -\tan x \sin x$$

= _____

$$11.) \frac{\cos \theta}{1 + \sin \theta} = \frac{1 - \sin \theta}{\cos \theta}$$

=

Use the sum/difference identity to find exact value.

12) $\sin 15^\circ$

=

13) $\tan 15^\circ$

=

Prove the Identity

$$14) \sin\left(x - \frac{\pi}{2}\right) = -\cos x$$

=

$$15) \tan\left(\theta + \frac{\pi}{4}\right) = \frac{1 + \tan \theta}{1 - \tan \theta}$$

=

Prove the Identity

$$16) \cos 2\theta = \cos^2 \theta - \sin^2 \theta$$

=

$$17) \sin 4x = 2 \sin 2x \cos 2x$$

=

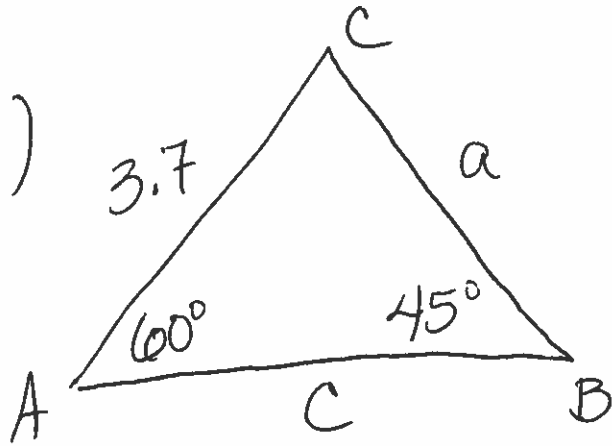
Find all the solutions in the interval $[0, 2\pi]$

$$18) \sin 2x = 2 \sin x$$

=

Solve the triangle

19.)



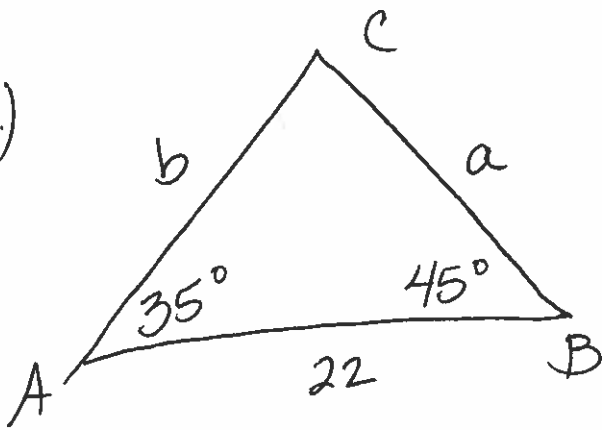
$$m\angle C = \underline{\hspace{2cm}}$$

$$a = \underline{\hspace{2cm}}$$

$$c = \underline{\hspace{2cm}}$$

← show work

20.)



$$m\angle C = \underline{\hspace{2cm}}$$

$$a = \underline{\hspace{2cm}}$$

$$b = \underline{\hspace{2cm}}$$

Tell whether the triangle is possible

$$21.) a = 1 \quad b = 8 \quad c = 8$$

= yes or no