Precalculus Test 5.1–5.3 Review (circled problems only)

Prove the identity.

1) $\dfrac{\csc x - 1}{\csc x + 1} = \dfrac{\cot^2 x}{\csc^2 x + 2\csc x + 1}$

2) $\cos\left(x + \dfrac{\pi}{2}\right) = -\sin x$

3) $\tan^5 x = \tan x\,(\sec^4 x - 2\sec^2 x + 1)$

4) $\dfrac{\cot x}{\csc x + 1} = \dfrac{\csc x - 1}{\cot x}$

5) $\cos(x + y) - \cos(x - y) = -2\sin x \sin y$

6) $\cot^2 x + \csc^2 x = 2\csc^2 x - 1$

Find an exact value.

7) $\tan\dfrac{19\pi}{12}$

Write the expression as the sine, cosine, or tangent of an angle.

8) $\sin 9x \cos x - \cos 9x \sin x$

Simplify the expression.

9) $\dfrac{1}{1 - \cos x} + \dfrac{1}{1 + \cos x}$

10) $\sin\left(\dfrac{\pi}{2} - x\right)\cos(-x)$

11) $\dfrac{(\csc y + \cot y)(\csc y - \cot y)}{\csc y}$

12) $\dfrac{1}{\cot^2\theta} + \sec\theta\cos\theta$

Use the fundamental identities to find the value of the trigonometric function.

13) Find $\cos\theta$ if $\sin\theta = -\dfrac{12}{13}$ and $\tan\theta > 0$.

Find a) all solutions in the interval $[0, 2\pi)$ b) Find all possible solutions

14) $3 - 2\sec^2 x = \tan^2 x$

Sorry it's sideways!

Review 5.5 + 5.6 (Laws of Sines + Cosines)

2) To find the distance AB across a river, a distance BC of 673 m is laid off on one side of the river. It is found that B = 106.4° and C= 15.9°. Find AB.

State whether the given measurements determine zero, one, or two triangles.

3) C = 31°, a = 13, c = 11
4) B = 75°, b = 27, c = 13
5) B = 80°, b = 23, c = 24
6) A = 30°, a = 16, b = 32

Solve the triangle(s).

7) A = 59°, a = 14, b = 15
8) A = 17°, C = 102°, c = 9
9) A = 52°, b = 10, c = 8
10) a = 6, b = 12, c = 9