Example 1: Simplify.

a. $(1 + \sin\theta)(1 - \sin\theta)$

b. $(5 + 5\cos\beta)(5 - 5\cos\beta)$

c. $(1 + \cot\omega)^2 - 2\cot\omega$

Example 2: Write the expression as a single fraction in terms of sine and cosine.

$\tan\gamma + \cot\gamma$

Example 3: Perform the addition and simplify.

$$\frac{1}{1+\sin v} + \frac{1}{1-\sin v}$$

Example 4: Rewrite $\frac{cos^2 y}{1-\sin y}$ so that it is *not* in fractional form.

Example 5: Use the substitution $x = 5\sin\vartheta$, $0 < \vartheta < \frac{\pi}{2}$ to write $\sqrt{25 - x^2}$ as a trigonometric function of ϑ.

Homework: **Lesson 5.1 Day 3 Worksheet and page 378 #81, 83, 93-99 odd**

Lesson 5.1 Day 3 Worksheet

Name: _____

Date: _____ **Hour:** _____

Perform each indicated operation and simplify the result.

1. $\cot\theta + \frac{1}{\cot\theta}$

2. $\frac{\sec x}{\csc x} + \frac{\csc x}{\sec x}$

3. $\tan v\,(\cot v + \csc v)$

4. $\cos\gamma(\sec\gamma + \csc\gamma)$

5. $\frac{\cos\beta}{\sec\beta} + \frac{\sin\beta}{\csc\beta}$

6. $\frac{\cos\theta}{\sin\theta} + \frac{\sin\theta}{1+\cos\theta}$

7. $(2\csc x + 2)(2\csc x - 2)$

8. $(\sin b + \cos b)^2$

9. $(1 + \sin\alpha)^2 + \cos^2\alpha$

10. $(1 + \tan r)^2 - 2\tan r$

11. $\frac{1}{1+\cos\beta} + \frac{1}{1-\cos\beta}$

12. $\frac{1}{\sec x + 1} + \frac{1}{\sec x - 1}$

Factor each trigonometric expression.

13. $2\sin^2 x + 3\sin x + 1$

14. $4\tan^2\vartheta + \tan\vartheta - 3$

15. $\sin^2\omega - 1$

Use identities to simplify each expression into a single expression.

16. $\sec\gamma\cos\gamma$

17. $\frac{\sin^2 x}{\cos^2 x} + \sin x \csc x$

18. $\frac{1}{\tan^2\beta} + \cot\beta\tan\beta$