

Name \_\_\_\_\_

Date \_\_\_\_\_

Evaluating Trigonometric Expressions  
Evaluate Using Exact Trig Values **Assignment #20**  
Use your notes to find the exact values then substitute and solve

1)  $\sec 60$

2)  $\csc 45$

3)  $\cot 30$

4)  $\sec 30$

**Evaluate and simplify**

1)  $\sec^2 60$

2)  $8 \cdot \sin^2 30$

3)  $8 \cdot \cos 30$

4)  $\sqrt{3} \cdot \tan 60$

5)  $\sec 60 \cdot \sin 30$

6)  $\cos 60 \cdot \sin 30$

7)  $\tan 45 \cdot \sec^2 60$

8)  $\sin 45 \cdot \cos 45$

9)  $100 \cdot \cot^3(45)$

10)  $12 \cdot \sin^2(60) \cdot \sec(60)$

One formula in Trigonometry is called the Angle Sum Formula. Here is the Angle Sum Formula for Sine:

$$\sin(\alpha + \beta) = \sin \alpha \cos \beta + \sin \beta \cos \alpha$$

Use that formula above to prove the following statements:

11)  $\sin(45 + 180) = \sin(225)$

12)  $\sin(30 + 300) = \sin(330)$

The Cosine Angle Sum formula is similar, but then the **Tangent and CoTangent Angle Sum Formulas get more complicated (and the Secant and Cosecant ones are really obnoxious!)**. Here is the Tangent Angle Sum Formula:

$$\tan(\alpha + \beta) = \frac{\tan \alpha + \tan \beta}{1 - \tan \alpha \tan \beta}$$

Use that formula to prove the following statement:

13)  $\tan(150 + 30) = \tan(180)$

14)  $\tan(15+30) = \tan(45)$

15)  $\tan(30+60) = \tan(90)$

16)  $\tan(210+240) = \tan 450$