Homework: pg 400 #1, 2, 3, 4-6(ace), 8ace, \*9ab (see pg 398), 11a, 13, (16)

**Compound Angle Formulas**

Key Trigonometric Identities

 

 

 

Consider the following terminal arms on a unit circle

**(0, 1)**

d

**(cos** a,  **sin** a**)**

**(cos** b,  **sin** b**)**

a - b

a

b

**(1, 0)**

**(-1, 0)**

**(0, -1)**

Activity

a) Determine the square of the length of line d using the cosine law.

b) Determine the square of the length of line d using Pythagorean Theorem;

.

c) Substitute the answer from a) into the answer for b)

d) Create an equation for  by replacing the variable 'b' with '-b'.

e) Create an equation for  using the identity .

f) Create an equation for  by replacing the variable 'b' with '-b'.

g) Compound angle formulas for  and  can be created using the quotient identity: .

In doing so, we get...

 

Example 1

Using the compound angle formulas to determine the exact value of the following:

a) 

b) 

Example 2

Simplify the following: 

Example 3

Use compound angle formulas to show that  .