**Activity 6.6.3 Angle Sum and Difference Formulas (+)**

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Do not use a calculator for this activity.

1. Use 120° and 45° to find exact values for the following trigonometric functions.

a. sin(165°) b. cos(165°)

 c. tan(165°)

2. Find exact values for the following:

a. sin(75°) b. cos(75°)

c. tan(75°)

3. Show that you used an angle sum or difference formula to find exact values for the following:

a. b.

c.

4. Derive the double angle formula for sine and cosine. Note sin(2a) that can be written sin(a + a)

a. Use the angle sum formula to expand sin(2a) using the angle sum formula and simplify.

b. Use the angle sum formula to expand cos(2a) and simplify.

c. Write the double angle formula for sine and the double angle formula for cosine:

 d. Verify an instance of the double angle formula for cosine by evaluating each side of the equation and showing it is true:

cos(60°) = cos2(30°) – sin2(30°)

5. Simplify the following, give exact values. Do this without a calculator.

a.

b. cos( ) cos( ) + sin( ) sin( )

c. 2 sin°15·cos15°

d. cos2() − sin2()

e. cos2() + sin2()

f.

g.