**Online Trigonometry Final Exam Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Directions: You may use your textbook, notes and calculator to complete this test. The time limit for this exam is 2 hours. This test must be completed and returned by Monday, December 12, 2011 along with your completed course project.**

1. **Evaluate the following using the Unit Circle:**

$$sin \frac{7π}{6}=$$

$$cos 135°= $$

$$cot 180°=$$

1. **Use your calculator to evaluate the following:**

$$sin 78°= $$

$$sec 4.6=$$

$$tan 15°=$$

1. **Complete the following Pythagorean Identity:** $sec^{2}θ=$ **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
2. **List the Power Reducing Formulas for sine and cosine.**
3. **Simplify the following trig expression completely:** $sin x-sin x cos^{2}x$
4. **Use the difference formula for Sine to simplify the following expression completely:**

$$sin(x- \frac{π}{2})$$

1. **Find two values of** $θ$ **between 0 and 360 degrees such that cos**$ θ= \frac{1}{2}$ **.**
2. **Find two values of** $θ$ **between 0 and 360 degrees such that tan**$ θ=5.1258$ **.**
3. **Find the distance across the swamp by solving problem 41 on page 213.**
4. **Find the exact value of** $d$ **for the triangle shown on page 213, problem number 42.**
5. **Prove the following identity:** $cos x+sin x tan x=sec x$
6. **Solve the following equation for all solutions in the interval** $\left[0°, 360°\right]$**:**

$2sin^{2}x-5 sin x-3=0$

1. **Solve the following equation for all solutions in the interval** $\left[0°, 360°\right]$**:**

$$cos^{2}x+sin x=1$$

**(14)**

**Given a triangle with angle** $A=20°$**, angle** $C=110°$**, and side** $a=5$ **units, use the Law of Sines to find the length of side b.**

**(15)**

**Use the Law of Cosines to find angle A for a triangle with sides** $a=55, b=25 $**and**

**c = 72.**