Trig Substitution Notes Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Example 1

Consider . Why can’t we complete this problem with our current tools?

Just when you think you can’t do it, then our good ol’ friend Tina Trig comes along to save us. ☺ Consider the right triangle below with AC = x and A\*=3. What does that make C\*?

A

 C \*

Now we have that . Solving this for x we get $x=3sin\*$ $=>dA=3cos\* d\*$. Now use substitution to replace all of your x’s in the original integral with \*’s. Don’t forget about dx.

Try solving the integral!

Don’t forget you need your answer in terms of x and not in terms of \*!

Example 2

Consider . We’ve done this type of problem before, but we are now going to learn a new way to think about it using right triangle trig.

This time, let AB = 4x and C\*=1. Try to complete the problem as you did the first one.

A

C \*

Don’t forget to leave your answer in terms of x and not \*.

Did you get what you expect? What is the “trick” in picking the sides of the triangles?

Now we will pull practice setting up the triangles for six of your homework problems, since this is the tricky part! In your groups (on a separate sheet of paper leaving space to work each problem), set up triangles for problems 9, 15, 19, 23, 29, and 33 from section 7.3).