

## Prelim I Prep 2

For the following statements, determine if they are always True or sometimes False. Provide an explanation if the statement is True or a counterexample if the statement is False.

1) The area of the region between  $y = f(x)$  and  $y = g(x)$  is  $\int_b^a (f(x) - g(x)) dx$ .

2) The volume of any solid of revolution can be written as a single definite integral using the shell method.

3) An antiderivative for  $f(x) = e^x \sin x$  is  $F(x) = e^x (\cos x + \sin x)$ .