Your grade is based on the process as well as the final result. Show all your steps clearly so you will be eligible for the most partial credit. You may use a calculator, but no notes, books, or other students. Good luck!

1.) (5 pts.) Let \( g(x) = x + \sin x \). Does \( g \) have any stationary points in the interval \([0, 2\pi]\)? If so, where?

Stationary points are where \( g' = 0 \).

\[ g'(x) = 1 + \cos x = 0 \] when \( \cos x = -1 \)

For \( x \) in \([0, 2\pi]\), this only happens at \( x = \pi \).

(That is, \( g'(\pi) = 0 \).) So the only stationary point is at \( x = \pi \).

2.) (5 pts.) Let \( f(x) = \sin x \cos x \). Compute \( f'(x) \).

\[ f'(x) = \cos x (\cos x) + \sin x (-\sin x) \]

(This is enough. Simplifying does not change much:

\[ f'(x) = \cos^2 x - \sin^2 x \] )