Concentrate on the process as well as the final result, and show all your steps clearly so you will be eligible for the most partial credit. Good luck!

1.) (6 pts.) Let \( F(x) = \int_0^x \sin(2t) \, dt \).
   
   a.) Evaluate \( F(\pi) \).
   
   b.) Draw a sketch to explain geometrically why the answer to part (a.) is correct.

2.) (4 pts.) Find the general solution of the differential equation \( \frac{dr}{dp} = 3 \sin p \).