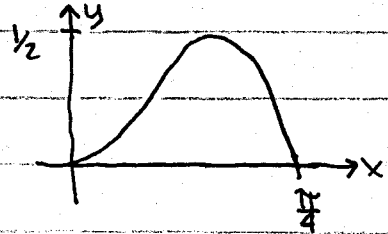


Show all work on this sheet, including indications of mental steps, in a clearly organized way that speaks for itself. Use proper mathematical notation/syntax.

Label parts, box final short answers.



- ① a) Evaluate $\int x \sin 4x \, dx$
- b) Use part a) to evaluate $\int_0^{\pi/4} x \sin 4x \, dx$.
- c) Let $f(x) = x \sin 4x$. Write down an expression S_4 in terms of f for the Simpson rule $n=4$ approximation to this definite integral. [If you forgot the coefficients, give the $n=4$ midpoint approximation instead.]
- d) Evaluate your expression from part c) using either MAPLE or your graphing calculator. Does your numerical result agree with part b)?