

## Assignment 2 Problem 2

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**2.** Let  $K_m$  denote the following indefinite integral:

$$K_m(x) = \int_x^m \sin(x) dx \text{ for } m = 0, 1, 2 \dots$$

(a) Evaluate  $K_1(x)$ .

$$K_1(x) = \int_x^1 \sin(x) dx$$

Integration by parts would be the strategy to solve the integral because the integrand is a product. Therefore, we let  $u = x$  and thus  $du = dx$  and  $dv = \sin x dx$  and thus  $v = -\cos x$ .

$$\begin{aligned} \int_x \sin(x) &= -x \cos x + \int_c \cos x dx \\ &= -x \cos x + \sin x + C \end{aligned}$$