1. (5 pts) Find $F(2)$ if $F(0) = 1$ and the graph of $F'(x)$ is given below.

\[
F(2) = F(0) + \int_{0}^{2} F'(x) \, dx = 1 + (2 + 1 - 1) = 1 + 2 = 3
\]

2. (each 5 pts) Find the following indefinite integrals.

(1) \[
\int \frac{\cos x}{\sin x} \, dx = \int \frac{1}{u} \, du = \ln |u| + C = \ln |\sin x| + C
\]

let $u = \sin x$

$du = \cos x \, dx$, by substitution

(2) \[
\int xe^x \, dx = uv - \int u'v \, dx = x \cdot e^x - \int 1 \cdot e^x \, dx = xe^x - \int e^x \, dx = xe^x - e^x + C
\]

by integration by parts