

-csc
-s

$$41) \int \frac{1 + \cos x}{\sin x} dx$$

A

$$\frac{(1 + \cos x)(1 - \cos x)}{\sin x (1 - \cos x)} = \frac{1 - \cos^2 x}{\sin x (1 - \cos x)} = \frac{\sin^2 x}{\sin x (1 - \cos x)}$$
$$= \frac{\sin x}{1 - \cos x}$$

$$\int \frac{\sin x}{1 - \cos x} dx \quad \begin{array}{l} u = 1 - \cos x \\ du = \sin x dx \end{array}$$

$$\int \frac{1}{u} du = \ln|u| + C = \ln|1 - \cos x| + C$$

$$44) r(t) = \ln(t+1)$$

Rate of leak and drinking: $10 + \ln(t+1) = R(t)$

$$a) R(5) = 10 + \ln(5+1) = 11.792 \text{ mL/sec}$$

$$b) \int_0^5 (10 + \ln(t+1)) dt = 55.751 \text{ mL}$$

(calc active)

omit c and d