

**Problem 1.** Suppose  $\lim_{x \rightarrow \infty} f(x) = 0$ . Can you say whether  $\int_1^{\infty} f(x)$  converges? What if  $f(x) < 1/x$  for all  $x$ ? What if  $f(x) > 1/x$  for all  $x$ ? What if  $f(x) < 1/x^2$  for all  $x$ ?

**Problem 2.** Find  $\int (x+1)e^{4-3x} dx$ .

**Problem 3.** Find  $\int \frac{1}{\sqrt{-x^2 - 4x - 3}} dx$ .