

Name: \_\_\_\_\_

QUIZ 11  
November 27, 2001

A continuous income stream has an annual rate of flow at time  $t$  given by

$$f(t) = 12000e^{0.04t} \text{ (dollars).}$$

If money is worth 8%, compounded continuously, find the present value of this stream for the next 8 years.

## Solutions to Quiz 11

Given an interest rate  $r$ , the present value for a continuous income stream over the next  $n$  years is given by the formula

$$\int_0^n f(t)e^{-rt} dt.$$

So the solution to this problem is

$$\begin{aligned} \int_0^8 12000e^{0.04t} e^{-0.08t} dt &= 12000 \int_0^8 e^{-0.04t} dt \\ &= \frac{12000}{-0.04} (e^{-8(0.04)} - e^0) \\ &= \$82,155. \end{aligned}$$