

## Problem 8

A young person with no initial capital invests  $k$  dollars per year at an annual rate of return  $r$ . Assume that investments are made continuously and that the return is compounded continuously.

- (a) Determine the sum  $S(t)$  accumulated at any time  $t$ .
- (b) If  $r = 7.5\%$ , determine  $k$  so that \$1 million will be available for retirement in 40 years.
- (c) If  $k = \$2000/\text{year}$ , determine the return rate  $r$  that must be obtained to have \$1 million available in 40 years.