

### Solution 1.40

In order to make CDs look more attractive as an investment than they really are, some banks advertise that their rates are higher than their competitors' rates; however, the fine print says that the rate is based on simple interest. If you were to deposit \$10,000 at 10% per year simple interest in a CD, what compound interest rate would yield the same amount of money in 3 years? Solve by formula and write the spreadsheet function to display the  $i$  value.

*Solution:*

$$\begin{aligned}\text{Simple: } F &= 10,000 + 10,000(3)(0.10) \\ &= \$13,000\end{aligned}$$

$$\text{Compound: } 13,000 = 10,000(1 + i)(1 + i)(1 + i)$$

$$(1 + i)^3 = 1.3000$$

$$3\log(1 + i) = \log 1.3$$

$$3\log(1 + i) = 0.1139$$

$$\log(1 + i) = 0.03798$$

$$1 + i = 1.091$$

$$i = 9.1\% \text{ per year}$$

Spreadsheet function: = RATE(3,-10000,13000) displays 9.14%