

Solution 1.42

A company that manufactures general-purpose transducers invested \$2 million 4 years ago in high-yield junk bonds. If the bonds are now worth \$2.8 million, what rate of return per year did the company make on the basis of (a) simple interest, and (b) compound interest? (c) What is the spreadsheet function to find the answer for compound interest?

Solution:

(a) Simple:

$$F = P + Pni$$

$$2,800,000 = 2,000,000 + 2,000,000(4)(i)$$

$$i = 10\% \text{ per year}$$

(b) Compound:

$$F = P(1 + i)(1 + i)(1 + i)(1 + i)$$

$$2,800,000 = 2,000,000(1 + i)^4$$

$$(1 + i)^4 = 1.4000$$

$$\log(1 + i)^4 = \log 1.400$$

$$4\log(1 + i) = 0.146$$

$$\log(1 + i) = 0.0365$$

$$(1 + i) = 10^{0.0365}$$

$$(1 + i) = 1.0877$$

$$i = 8.77\%$$

(c) Spreadsheet function: = RATE(4,,-2000000,2800000)