

Sacki obtained a credit card from MBNA with a stated rate of 18% per year compounded monthly.

For a \$1,000 <sup>now</sup> account balance, find the amount owed to MBNA after 1 year, provided no payment is made during the year.

Interest rate per month:

$$i_m = \frac{18}{12} = 1.5\%$$

⇒

$$\begin{aligned} F &= 1,000 (F/P, 1.5\%, 12) \\ &= 1,000 (1.015)^{12} = \$1,195.62 \end{aligned}$$

Effective interest rate:

$$\begin{aligned} F &= P(1 + (i)^n) \Rightarrow i_e = \frac{F}{P} - 1 \\ &= \frac{1,195.62}{1,000} - 1 \\ &= 19.562\% \end{aligned}$$