Example 2

Rosa wants to buy a house worth $231 000. She has saved enough money to make a 10% down payment. Her bank offers her a mortgage at a rate of 4.85% over 25 years.

Calculate the amount of interest that will be taken from Rosa's first monthly mortgage payment. (Hint: You don't need to know the amount of the monthly payment to know how much interest will be charged in the first month!)

Interest (first month) = Principal (mortgage) × interest rate × time (1 month $\left(\frac{1}{12}\right)$)

Mortgage = Purchased price − Down payment

Down payment = 10% of $231 000 $\Rightarrow 0.10 \times 231\,000 = \$23\,100$

Mortgage = 231 000 − 23 100

= $207 900

Interest (first payment) = $207 900 $\times \left(\frac{4.75}{100}\right) \times \left(\frac{1}{12}\right)$

= $822.94

Example 3

Gina just bought a house. She took out a $285 000 mortgage from her bank that charges 4.5% annual interest over 25 years. Her monthly payment is $1576.05. Calculate the total amount of money she will still owe the bank after she makes her first payment.

① First month Interest = mortgage × interest rate $\times \left(\frac{1}{12}\right)$

$= 285000 \times \left(\frac{4.5}{100}\right) \times \left(\frac{1}{12}\right) = \$\,1068.75$

② First month of principal = monthly mortgage − interest of first month

= $1576.05 − $1068.75 = $507.30

③ Gina still owes: mortgage − first month of principal

= $285 000 − $507.30

= $284 492.70