

6.4 The monthly payment for a bank loan depends on the amount of the loan, the duration of loan and the interest rate.

If  $P$  denotes the amount of the loan,  $N$  denotes the duration of loan in months and  $r$  denotes the annual interest rate in percent. Then the monthly payment can be calculated by the following formula

$$\text{Monthly Payment} = \frac{R * (1 + R)^N * P}{(1 + R)^N - 1}$$

$$\text{where } R = \frac{1}{12} \left( \frac{r}{100} \right)$$

Write a function *double Payment (double Amount, int Month, float Rate)* to find the monthly payment and total payment.

$$\text{Total payment} = \text{Monthly Payment} * \text{duration}$$

Write a program to test your function.

Hint : Make use of the function *double Power (float x, int y)* in Problem 6.3.

Sample running :

Start program.

Welcome. This program helps you to find the payment for a loan.

Please enter the loan amount in dollars : **16000**<CR>

Please enter the loan duration in Month : **300**<CR>

Please enter the annual interest rate in percent : **12.5**<CR>

Monthly payment : \$ 174.46

Total payment : \$ 52337.03

Do you want to try again (y/n)? **y**<CR>

Please enter the loan amount in dollars : **24000**<CR>

Please enter the loan duration in Month : **120**<CR>

Please enter the annual interest rate in percent : **8.5**<CR>

Monthly payment : \$ 297.57

Total payment : \$ 35708.00

Do you want to try again (y/n)? **n**<CR>

End program.