

Example 2 $PV = 6000$

You borrow \$6 000 with interest ch:

$$PMT = -240$$

You will make \$240

 $PY =$ payments every month until the loan is paid off.

- 12 a) Calculate how long it will take to pay off the loan. Answer in number of months, to two decimal places. Find $N =$
- b) How many years will it take to pay off the loan?
- c) Calculate the total amount of money you will end up paying back to the bank.
- d) Calculate the amount of interest you ended up paying to the bank.

a) 26.52 months

$$*N = ? 26.52$$

$$I = 5.25$$

$$PV = 6000$$

$$PMT = -240$$

$$FV = 0$$

$$P/Y = 12$$

$$C/Y = 2$$

b) Convert 26.52 months to year, $\div 12 : \frac{26.52}{12}$
 $= 2.21$ years

c) TOTAL Amount repaid: $240 \times \text{no. of months}$
 $= 240 \times 26.52$
 $= \underline{\underline{\$6364.80}}$

d) Interest paid: $6364.80 - 6000$
 $= \underline{\underline{\$364.80}}$

Example 3 PV Diego borrows \$9500 to build a garage. He can afford payments of \$300 every month. The bank charges interest at 4.85% compounded quarterly. $C/Y = 4$

$$PY = 12$$

$$PMT = -300$$

- a) How many months will it take to pay off the loan? Give your answer to the nearest whole number.
- b) How much interest will Diego pay over the life of his loan?
- c) Two years after borrowing the money to build his garage, Diego won \$25 000 on a lottery ticket. To save interest, he wants to pay off the remainder of his loan. Calculate how much Diego will still owe after two years.

$$*N = ? 33.94 \text{ months}$$

$$I = 4.85$$

$$PV = 9500$$

$$PMT = -300$$

$$FV = 0$$

$$PY = 12 \text{ months}$$

$$C/Y = 4$$

a) Takes 33.94 months to repay the loan.

b) Interest = (monthly payments \times time) - loan

$$(300 \times 33.94) - \$9500$$

$$= 10182 - 9500$$

$$= \underline{\underline{\$682.00}}$$

c) After 2 years, Diego would have paid -
TOTAL - 300 (monthly payments) \times month \times years
 $10182 - 7200$
 $= \underline{\underline{\$2982}}$