

Example 1

David needs a new vehicle and is considering purchasing a new truck with a purchase price of \$35 000 (taxes included). David has two options:

Option 1: Purchase the truck with a loan

David has a down payment of \$4500.
 The interest rate is 5.45% compounded monthly.
 Monthly payments are made for 4 years. $N = 4 \times 12$

N = 48
I% = 5.45
PV = 30500
PMT = -708.63
FV = 0
P/Y = 12
C/Y = 12
PMT: <input type="checkbox"/> END <input checked="" type="checkbox"/> BEGIN

- a) Determine the monthly payment.
- b) What is the total cost of the truck?

Option 2: Lease the Vehicle

David will make a down payment of \$4500.
 The lease payment of \$420 per month plus GST for 4 years.
 The buyout price (residual value) is \$14 350 (taxes included).

- a) Determine the monthly lease payment after tax.
- b) Determine the total of all lease payments over the four years.
- c) Determine the total cost of the truck if David leases the truck and then buys it.

Which option would you recommend David choose? Explain using mathematically calculated values.

OPTION 1

$$\begin{aligned} \text{Loan} &= \text{Purchase price} - \text{down payment} \\ &= 35000 - 4500 \\ &= 30500 \end{aligned}$$

N = 4 x 12 = 48
I = 5.45
PV = 30500
PMT = -708.63
FV = 0
P/Y = 12
C/Y = 12

$$\begin{aligned} \text{TOTAL COST} &= \text{monthly payment} \times 12 \times 4 + \text{down payment} \\ &= (708.63 \times 12 \times 4) + 4500 \\ &= 34014.13 + 4500 \\ &= \underline{\underline{\$38514.13}} \end{aligned}$$

OPTION 2

$$\text{a) monthly lease payment} = 420 \times 1.05 = \$441$$

$$\begin{aligned} \text{b) TOTAL Lease payments} &= \\ &= \text{Down payment} + (\text{monthly lease} \times 12 \times 4) \\ &= 4500 + (441 \times 12 \times 4) \\ &= 4500 + 21168 \\ &= \underline{\underline{\$25668}} \end{aligned}$$

$$\begin{aligned} \text{c) TOTAL COST} &= 25668 + \text{Residual} \\ &= 25668 + 14350 \\ &= \underline{\underline{\$40018}} \end{aligned}$$

David should choose option 2, because it is \$1503.87 less