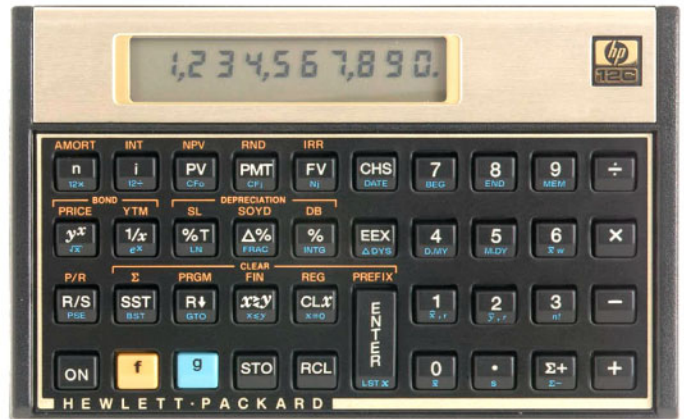**hp calculators**

HP 12C Solving for lease payments

Lease payments

The HP12C TVM

Practice solving for the payment on a lease

Lease payments

A lease is an agreement for one company or individual to use an asset owned by another company or individual for a specified time. The payment required (often called the "rent") during this lease period depends upon the interest rate involved and the decline in value the asset with experience while being used. The projected value of the asset at the end of the period is often called the residual value. Lease payments are usually made in advance, which requires them to be treated as annuities due.

For the HP12C to solve problems involving leases or annuities due, it must be in Begin mode.

This mode is changed using the blue-shifted BEG function, located on the $\boxed{7}$ key, or $\boxed{g}\boxed{\text{BEG}}$. This function will change the calculator to view payments happening at the beginning of periods rather than the end. When the HP12C is in Begin mode, the word BEGIN will show in the display. To reset the calculator for ordinary annuities, press $\boxed{g}$ $\boxed{\text{END}}$.

If you receive an unexpected result when solving an annuity problem, make sure that the calculator is in the proper mode and try resolving the problem.

Note that it may also be difficult to determine the actual interest rate involved in a lease. The examples below assume this interest rate is known.

The HP12C TVM

Standard HP12C features solve these types of problems with the five TVM keys $\boxed{n}$, $\boxed{i}$, $\boxed{\text{PV}}$, $\boxed{\text{PMT}}$ and $\boxed{\text{FV}}$. These keys are associated to the five TVM registers n, i, PV, PMT and FV. To set any of these registers to a known value, calculate or key it in and press the corresponding key. Enter each of the four known TVM values, press its related key, then press the key that represents the unknown, fifth value to calculate it.

There are also two functions meant to be an aid when entering or retrieving annual values for $\boxed{n}$ and $\boxed{i}$: $\boxed{12\text{x}}$ and $\boxed{12\div}$. Pressing $\boxed{g}\boxed{12\text{x}}$ is the same as pressing $\boxed{\text{ENTER}}\boxed{1}\boxed{2}$ $\boxed{\text{X}}$ $\boxed{n}$, meaning the number of years can be keyed in and stored as number of months automatically. Pressing $\boxed{g}\boxed{12\div}$ is the same as pressing $\boxed{\text{ENTER}}\boxed{1}\boxed{2}$ $\boxed{\div}$ $\boxed{i}$, meaning the yearly interest rate can be keyed in and stored as monthly interest rate automatically. It is also possible to retrieve the yearly-related values by pressing $\boxed{\text{RCL}}\boxed{g}\boxed{12\text{x}}$ (number of years) and/or $\boxed{\text{RCL}}\boxed{g}\boxed{12\div}$ (yearly interest rate) whenever necessary.

Practice solving for the payment on a lease

Example 1:   A company is considering leasing a machine that costs $20,000 today. The lease would be for 5 years with a residual value of $6,000 for the machine at the end of that period. The agreement calls for the use of an 8%, compounded monthly, interest rate. If monthly lease payments will be made, what is the size of the lease payment required?

Solution: To solve this leasing problem, the calculator will need to be in Begin mode. The solution below assumes the HP12C calculator is not already in this mode. If the calculator is already in this mode, the keystrokes of $\boxed{g}\boxed{\text{BEG}}$ shown below may be omitted. Remember to change the calculator back to End mode before solving ordinary annuities again.

$\boxed{g}\boxed{\text{BEG}}$ $\boxed{2}\boxed{0}\boxed{0}\boxed{0}\boxed{0}$ $\boxed{\text{PV}}$ $\boxed{8}$ $\boxed{g}\boxed{12\div}$ $\boxed{5}$ $\boxed{g}\boxed{12\text{x}}$ $\boxed{6}\boxed{0}\boxed{0}\boxed{0}$ $\boxed{\text{CHS}}\boxed{\text{FV}}$ $\boxed{\text{PMT}}$

HP 12C Solving for lease payments

Answer: $321.72

Example 2: An individual is considering leasing a car that costs $26,995 today. The lease would be for 2 years with a residual value of $14,000 for the vehicle at the end of that period. The agreement calls for the use of a 6%, compounded monthly, interest rate. If monthly lease payments will be made, what is the size of the lease payment required?

Solution: To solve this leasing problem, the calculator will need to be in Begin mode. The solution below assumes the HP12C calculator is not already in this mode. If the calculator is already in this mode, the keystrokes of ⌐g⌐ ⌐BEG⌐ shown below may be omitted. Remember to change the calculator back to End mode before solving ordinary annuities again.

⌐g⌐ ⌐BEG⌐ ⌐2⌐⌐6⌐⌐9⌐⌐9⌐⌐5⌐ ⌐PV⌐ ⌐6⌐ ⌐g⌐⌐12÷⌐ ⌐2⌐ ⌐g⌐⌐12x⌐ ⌐1⌐⌐4⌐⌐0⌐⌐0⌐⌐0⌐ ⌐CHS⌐⌐FV⌐ ⌐PMT⌐

Answer: $642.73

Example 3: A company is considering leasing a machine that costs $24,505 today. The lease would be for 3 years with a residual value of $11,000 for the machine at the end of that period. The agreement calls for the use of a 10%, compounded monthly, interest rate. If monthly lease payments will be made, what is the size of the lease payment required?

Solution: To solve this leasing problem, the calculator will need to be in Begin mode. The solution below assumes the HP12C calculator is not already in this mode. If the calculator is already in this mode, the keystrokes of ⌐g⌐ ⌐BEG⌐ shown below may be omitted. Remember to change the calculator back to End mode before solving ordinary annuities again.

⌐g⌐ ⌐BEG⌐ ⌐2⌐⌐4⌐⌐5⌐⌐0⌐⌐5⌐ ⌐PV⌐ ⌐1⌐⌐0⌐ ⌐g⌐⌐12÷⌐ ⌐3⌐ ⌐g⌐⌐12x⌐ ⌐1⌐⌐1⌐⌐0⌐⌐0⌐⌐0⌐ ⌐CHS⌐⌐FV⌐ ⌐PMT⌐

Answer: $532.08