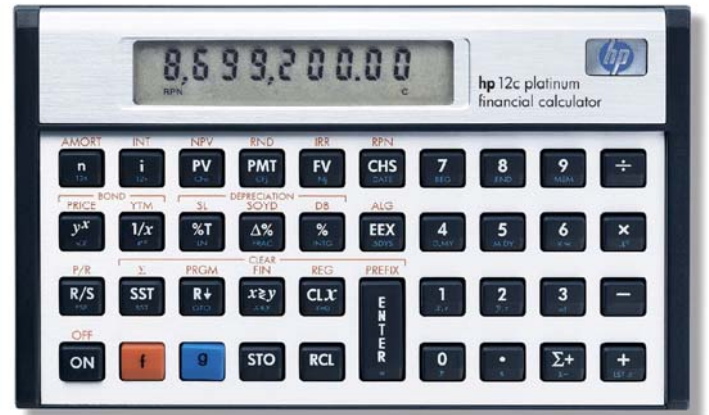# hp calculators

HP 12C Platinum
Managing dates

Calculating with dates

Dates on the HP12C Platinum

Date representation in the HP12C Platinum

Practice solving problems involving dates

Calculating with dates

Since financial computations depend on periods of time, the ability to handle dates is important. Knowing the number of days between two dates or computing a new date given a reference date and a number of days between them are often part of financial problems. The HP12C Platinum offers both functions: ΔDYS to compute days between dates and DATE to compute a new date given a reference day a number of days between them. ΔDYS computes the number of days based on both financial and actual years. Dates and date representation are also important when calculating bonds (PRICE and YTM).

Dates on the HP12C Platinum

Dates can be entered and shown in one of two available formats: D.MY or M.DY, where D is the day number, M is the month number and Y is the year. To set one of these modes, use g M.DY (to access the blue function on the front face of 5 key) or g D.MY (to access the blue function on the face of 4 key). M.DY is the default mode, and there is no specific indication for it. If D.MY is set, the display shows:

<div align="center">D.MY</div>   Figure 1

The HP12C Platinum accepts and computes dates in the range October 15th, 1582 trough November 25th, 4046.

Date representation in the HP12C Platinum

The only data that can be entered in the HP12C Platinum are numbers with up to a ten-digit mantissa and a two-digit exponent of ten. Whether D.MY or M.DY is set, dates are entered as numbers coded this way:

> D represents a valid day and is typed in as a number from 01 to 31.
> M represents the month and is typed in as a number from 01 to 12.
> Y represents the year and is typed in as a number from 1582 to 4046.

The actual number that represents a date is entered in the following format:

> MM.DDYYYY if M.DY is set;
> DD.MMYYYY if D.MY is set;

where DD is the day with two digits, MM is the month number with two digits and YYYY is the year with four digits. In either case, typing in leading zeroes for the integer part before the decimal is not necessary.

Although dates are coded accordingly, the date representation that is typed in is only a regular number. The date/number will be checked for validity and format only when a date-related function is performed. So, typing in 1.072004 or 7.012004 does not imply the need for setting g M.DY or g D.MY. Otherwise, performing a date-related function demands using a representation according to the current date format.

Given a reference date and a number of days, a new date is computed with g DATE. The number of dates can be any integer: positive for future dates, negative for past dates and zero for the current day.

Practice solving problems involving dates

Example 1: Show how to enter the date September 1st, 2004 in M.DY format.

Solution: The values for this date are: 7 (September), 01 (1st day) and 2004 (year). So the keystroke sequence should be:

⌷7⌷ ⌷·⌷ ⌷0⌷⌷1⌷⌷2⌷⌷0⌷⌷0⌷⌷4⌷

$$7.012004$$

Answer: Figure 2

Example 2: Show how to enter the date September 1st, 2004 in D.MY format.

Solution: The values for this date are the same ones shown in prior example, but their order is different. The keystroke sequence now should be (make sure to clear the display if the previous example was typed in):

⌷CLx⌷ ⌷1⌷ ⌷·⌷ ⌷0⌷⌷7⌷⌷2⌷⌷0⌷⌷0⌷⌷4⌷

$$1.072004$$

Answer: Figure 3

Example 3: A 180-day simple interest loan is taken in January 15th, 2002. What is the expiration date? Compute the expiration date using both M.DY and D.MY formats.

Solution: Make sure M.DY is set:

⌷g⌷ ⌷M.DY⌷

The keystroke sequence below computes the expiring date:

⌷1⌷ ⌷·⌷ ⌷1⌷⌷5⌷⌷2⌷⌷0⌷⌷0⌷⌷2⌷ ⌷ENTER⌷ ⌷1⌷⌷8⌷⌷0⌷ ⌷g⌷ ⌷DATE⌷

$$7,14,2002 \quad 7$$

Figure 4

Answer: The expiring date is July 14th, 2002.

The display representation for a computed date is special and shows grouped digits for month, day and year separated by commas or dots, depending on which one is the current radix mark. The rightmost digit represents the day of week, and is interpreted as:

1	Monday	2	Tuesday	3	Wednesday	4	Thursday
5	Friday	6	Saturday	7	Sunday		

So, the expiring date July 14th, 2002 is also a Sunday. Now, make sure D.MY is set:

[g] [D.MY]
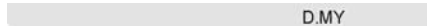
| D.MY | Figure 5

The keystroke sequence below computes the expiring date in the current date format:

[1][5][•][0][1][2][0][0][2] [ENTER] [1][8][0] [g][DATE]

$$14,07,2002 \quad 7$$
D.MY
Figure 6

Answer: As expected, the expiring date is July 14th, 2002, and it is shown according to the current date format

Example 4:   What day of the week is October 13th, 2003? Enter the date in M.DY format.

Solution: Make sure M.DY is set:

[g] [M.DY]

The keystrokes below make use of the fact that if a date is computed with 0 as the number of days, the original date is returned but analyzed for the day of the week.

[1][0][•][1][3][2][0][0][3] [ENTER] [0] [g][DATE]
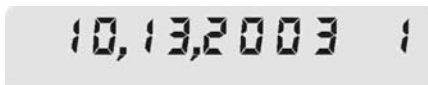
$$10,13,2003 \quad 1$$
Figure 7

Answer: October 13rd, 2003 was a Monday.

Example 5:   Consider a simple interest accruing from September 10th, 2004 to December 14th, 2004. What is the number of days between them? Use the current format.

Solution: From the previous example, the calculator remains in M.DY format:

[9][•][1][0][2][0][0][4] [ENTER] [1][2][•][1][4][2][0][0][4] [g][ΔDYS]

$$95.00$$
Figure 8

Answer: 95 days.