Re: Problems with calculating the proper compounding

Source: http://sci.tech−archive.net/Archive/sci.math/2008−02/msg00393.html

- *From*: Jim <jim@xxxxxxxxxxxx>
- *Date*: Sat, 2 Feb 2008 20:32:06 −0800 (PST)

On Feb 1, 5:59 pm, The World Wide Wade <aderamey.a...@xxxxxxxxxxx>
wrote:

> In article
> <c8fb3fa8−3680−4de4−ab3c−4e7b991d6...@xxxxxxxxxxxxxxxxxxxxxxxxxxxx>,
>
> Jim <j...@xxxxxxxxxxxx> wrote:
>
> > Hello,
> >
> > I'm creating a spreadsheet that automatically determines the payment
> > amount for a mortgage.
> >
> > The problem that I'm running into is that when the compounding for the
> > interest rate is different from that of the payment frequency, I'm not
> > calculating the equivalent rate correctly.
> >
> > For example:
> >
> > J12 = 5.75%
> > Monthly payments
> > Amortization = 40
> > n = 40 * 12 = 480
> >
> > PV
> > PMT = ~~~~~~~~~~~~~~~~~~~~~~~~~~~~

1 − (1 + (J1/12)) ^ (−n))
~~~~~~~~~~~~~~~~~~~
(J1/12)

^ = exponent

I do that, and then I input J1 instead of J12.

It calculates it very closely, but I know that I'm doing something wrong.

Can someone please tell me?

Looks like the right formula. Maybe some roundoff error somewhere. Try its mathematical equivalent,

pmt = PV*(1+r)^n*r/((1+r)^n − 1),

where r is the monthly interest rate (= 5.75%/12 in your example).
That's what I set up in Excel a long time ago and it seems to give me exact answers.
~~~~~~~~~~~~~~~~~~~