

Paper 060-30**HOW OLD AM I?****Deb Cassidy****ABSTRACT**

Calculating age seems like such a simple task. All you need to do is make sure today's date and the birth date are stored as SAS[®] dates, subtract the dates and divide by 365. Oops, what about leap years? Make that divide by 365.25. This formula does give you a "quick and dirty" answer but isn't exact enough for many applications. This presentation will show you other formulas for calculating age that can be more exact.

OVERVIEW

Several years ago I did a presentation on date functions. In it, I showed a function and stated that it was often used to calculate age but some people considered it inaccurate because it wasn't as precise as more complex formulas under certain cases. Attendees completed evaluations for the presentation and one person noted that I shouldn't be presenting "wrong" code. Whether it yields wrong results really depends on your need for precision. The same issue as to whether a calculation was "wrong" and the need for precision was discussed in several messages on SAS-L in July 2004. The paper shows some of the calculations and how age can differ.

CALCULATIONS

In the following calculations, BIRTH represents the birth date. SOME_DATE is the date you are using as your basis for determining age. You might want the date as of the date the report was run or you might want a specific date.

```
A = INT((some_date - birth)/365.25);
```

```
B = &nowyear - YEAR(birth); **&nowyear is a macro variable containing the current year
```

```
C=FLOOR(YRDIF(birth, some_date, ' ACT/ACT' ));
```

```
D=INTCK("year",birth,some_date);
```

```
E=FLOOR(INTCK("month",birth,some_date)/12);
```

```
F=FLOOR(INTCK("day",birth,some_date)/365.25);
```

```
G=INT((INTCK(' month' ,birth,some_date)+DAY(birth)>DAY(some_date)))/12);
```

RESULTS

My daughter was born 4/24/2000. The table below shows her age at various dates based on the different formulas.

Date	A	B	C	D	E	F	G
12/31/2000	0	0	0	0	0	0	0
1/1/2001	0	1	0	1	0	0	0
1/2/2001	0	1	0	1	0	0	0
1/3/2001	0	1	0	1	0	0	0
3/31/2001	0	1	0	1	0	0	0
4/1/2001	0	1	0	1	1	0	0
4/23/2001	0	1	0	1	1	0	0
4/24/2001	0	1	0	1	1	0	1
4/25/2001	1	1	1	1	1	1	1
4/26/2001	1	1	1	1	1	1	1
12/31/2001	1	1	1	1	1	1	1
1/1/2002	1	2	1	2	1	1	1
4/23/2002	1	2	1	2	2	1	1
4/24/2002	1	2	1	2	2	1	2
4/25/2002	2	2	2	2	2	2	2
4/26/2002	2	2	2	2	2	2	2
4/23/2003	2	3	2	3	3	2	2
4/24/2003	2	3	2	3	3	2	3
4/25/2003	3	3	3	3	3	3	3
4/26/2003	3	3	3	3	3	3	3
4/22/2004	3	4	3	4	4	3	3
4/23/2004	3	4	3	4	4	3	3
4/24/2004	4	4	4	4	4	4	4
4/25/2004	4	4	4	4	4	4	4
4/26/2004	4	4	4	4	4	4	4
1/1/2021	20	21	20	21	20	20	20
4/1/2021	20	21	20	21	21	20	20
4/23/2021	20	21	20	21	21	20	20
4/24/2021	20	21	20	21	21	20	21
4/25/2021	21	21	21	21	21	21	21
1/1/2065	64	65	64	65	64	64	64
4/1/2065	64	65	64	65	65	64	64
4/23/2065	64	65	64	65	65	64	64
4/24/2065	64	65	64	65	65	64	65
4/25/2065	65	65	65	65	65	65	65
4/26/2065	65	65	65	65	65	65	65
4/27/2065	65	65	65	65	65	65	65

COMPARISON OF RESULTS

Notice that formulas B & D are calculated such that the age changes on January 1 each year. It may be better to consider these formulas as a way to determine the age you will be on your birthday “in that year”. Some may not consider this a “true age” but the people who posted the calculations on SAS-L find they are acceptable for their applications.

Calculation E is closer yet her “age” will change on the first day of April each year rather than on her birthday. This calculation would be valid in applications such as those where the person can enroll on any day of the birth month and not have to wait until the actual birth day.

Calculations A, C and F show my daughter turned 1 on 4/25/2001. That’s close except she was born on 4/24. She turned 2 and 3 on 4/25 as well. However, she turned 4 on 4/24/2004. Her age will be right during leap years but off a day in the other years.

Calculation G is the most complicated formula. It is also the most accurate. Her age will change on 4/24 each year.

Some people may wonder why it matters. I included the ages of 21 and 65 since those ages are two important milestones for almost everyone. Some of those milestones involve your eligibility for money-related matters such as pensions. Wouldn’t you want the event to happen on the correct day?

SUMMARY

There are many ways to calculate age and some are shown above. For some applications, “close” is fine. However, for others an “exact” age is needed. This paper shows you examples of the differences and you will need to determine which is acceptable for your application.

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