



# ASK THE EXPERT

## Tips and Tricks for Working With Dates and Times in SAS®

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Davetta is a Principle Technical Trainer and Curriculum Consultant with SAS Global Education. She teaches SAS programming along with other technical courses. Dunlap has been with SAS for 27 years.

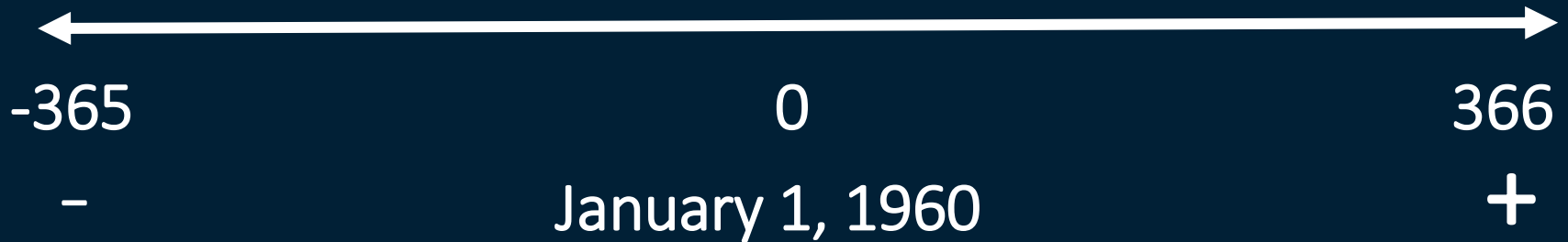
# Why can't a SAS Date, SAS Time, SAS Datetime be a character?

## Reasons why?

- They aren't useful in calculations.
- They are flexible in how you can display them.
- What you see is what you get!

# What is a SAS Date?

A SAS date value is a **numeric value representing the number of days between January 1, 1960 and a specific date.**



# What is a SAS Time?

A SAS time value is a **numeric value representing the number of seconds since midnight of the current day.** SAS times are values between 0 and 86400.



# What is a SAS Datetime?

A SAS datetime value is a **numeric value representing the number of seconds between midnight, January 1, 1960, and the *specified date and time*.**




# TIP & TRICKS



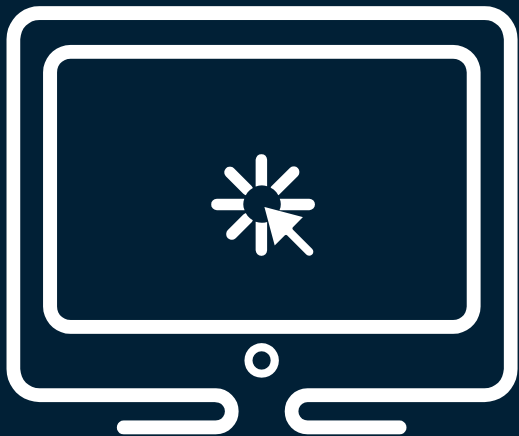
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# TIPS & TRICKS



CONVERT	<ul style="list-style-type: none"><li>• CONTENTS</li><li>• INPUT</li></ul>
CREATE	<ul style="list-style-type: none"><li>• FUNCTIONS</li><li>• CONSTANTS</li></ul>
READ/WRITE	<ul style="list-style-type: none"><li>• INFORMATS</li><li>• FORMATS</li></ul>
CALCULATIONS	<ul style="list-style-type: none"><li>• BASIC</li><li>• INTERVALS</li></ul>





# DEMONSTRATION

SAS Date, SAS Time and SAS Datetime Tips & Tricks



## Summary

- ① Is it character, numeric or a SAS Date, SAS Time, SAS Datetime numeric?



## TIPS & TRICKS

- Can't determine the type by just looking?
  - ★ RUN A PROC CONTENTS STEP!
    - It's important that you know your data.
    - Use SAS tools to investigate the data.
    - Ask questions from the original source that created the data IF you know where it came from.

## Summary

- ① Convert a value to a SAS Date, SAS Time or SAS Datetime



## TIPS & TRICKS

- If it's not the right data type you need, convert it!
  - ★ Use the INPUT function to convert to SAS Date, SAS Time or SAS Datetime.
    - Use the correct reading instruction to convert the data properly (INFORMAT).
      - ✓ 10/19/2022 → INPUT(CharDate,MMDDYY10.)
      - ✗ 19Oct2022 → INPUT(CharDate,MMDDYY10.)
      - ✓ 19Oct2022 → INPUT(CharDate,DATE9.)
      - ✓ 10:20:05pm → INPUT(CharTime,TIME11.)

## Summary

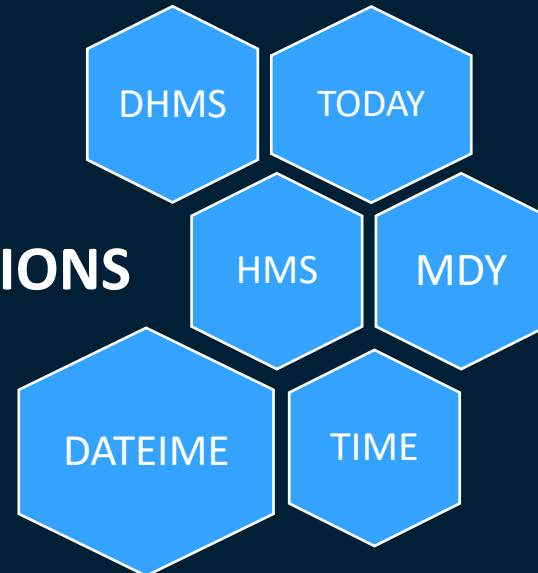
- 2 Create your own SAS Dates, SAS Times and SAS Datetime values



## TIPS & TRICKS

- If you need to create SAS Dates, SAS Times and SAS Datetimes.
  - ★ Use SAS FUNCTIONS or Date/Time/Datetime CONSTANTS.

### FUNCTIONS



## Summary

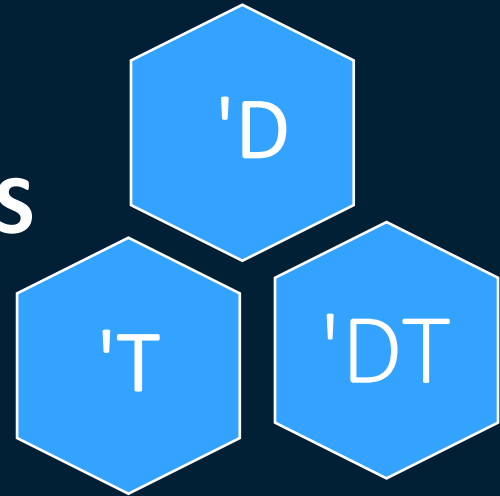
- ② Create your own SAS Dates, SAS Times and SAS Datetime values



## TIPS & TRICKS

- If you need to create SAS Dates, SAS Times and SAS Datetimes.
  - ★ Use SAS FUNCTIONS or Date/Time/Datetime CONSTANTS.

### CONSTANTS



## Summary

### ③ READ data using INFORMATS



## TIPS & TRICKS

- If you need to READ data...
  - ★ Use an INFORMAT that matches the data you need to read.

DATA	INFORMATS
OCT2022	MONYY7.
<i>ddmonyy:hh:mm:ss</i>	DATETIME.
DATE, DATETIME, DDMMYY, JULIAN, MDYAMPM, MMDDYY, MMxYY, JULIAN, MDYAMPM, MONYY, TIME, YMDDTTM	ANYDTEw.
DATE, DATETIME, DDMMYY, JULIAN, MDYAMPM, MMDDYY, MMxYY, JULIAN, MDYAMPM, MONYY, TIME, YMDDTTM	ANYDTDMw.

## Summary

- 3 Display or write data using FORMATS



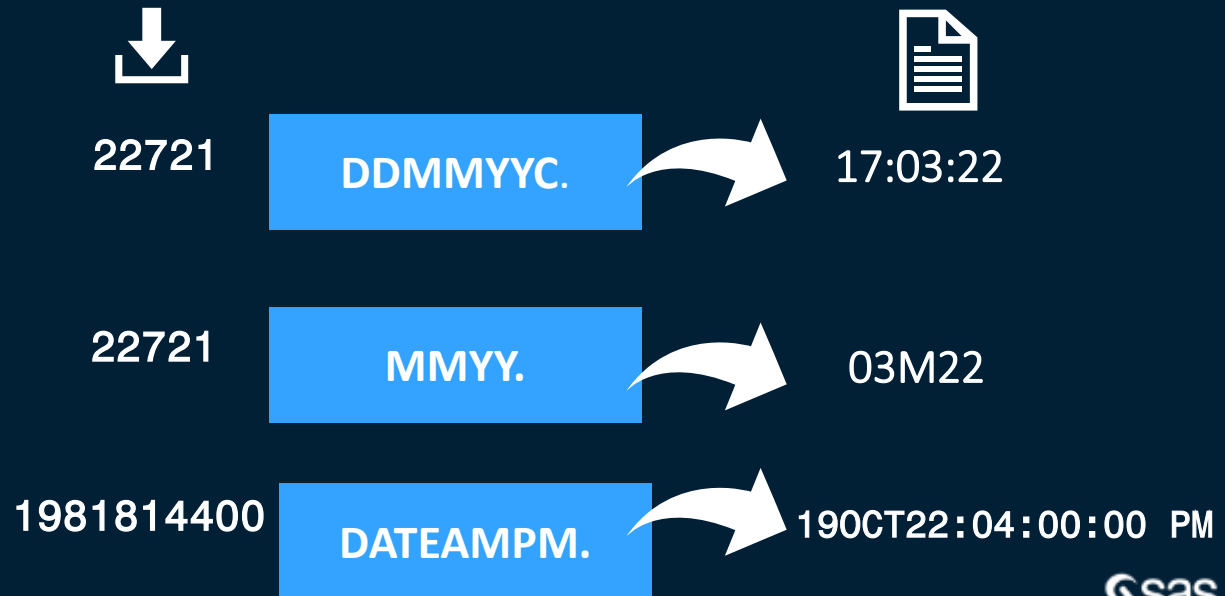
Changing how values appear makes it easier to interpret them.



## TIPS & TRICKS

- IF YOU NEED TO WRITE OR DISPLAY DATA...

★ Use a SAS FORMAT based on how you want your data value displayed.



## Summary

- ③ Display or write data using FORMATS or User-defined FORMATS



## TIPS & TRICKS

- IF YOU NEED TO WRITE OR DISPLAY DATA AND AN EXISTING SAS FORMAT DOES NOT EXIT
  - ★ Use PROC FORMAT to create your own user-defined SAS formats with DATE and TIME Directives

```
proc format;  
  picture mytime  (round)  
  low-<86400='%H hours, %M minutes'  
          (datatype=time)  
  86400-high='%n days, %H hours, %M minutes'  
          (datatype=time) ;  
  
run;
```



## Summary

- ④ Use SAS Dates, SAS Times and SAS Datetimes in calculations



## TIPS & TRICKS

- SAS Dates, Times and Datetime values are numeric and can be used in calculations to count intervals.
- ★ It's just a number, use them simple calculations or more complex computations with Interval functions.

```
Days2Deliver= DeliverDate-OrderDate;
```

```
YOS= (HireDate-today())/356.25;
```

INTNX Function

INTCK Function



**THANK YOU!**

# Q&A

Please submit your questions using the Q&A icon located in the menu at the bottom of your screen



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Thank you  
for joining us for  
this SAS webinar