# Mathematical Functions

Work through the following exercises to help develop your skills using date and time functions. Read each exercise instruction carefully. For exercises that don’t require the creation of a new rule, simply create a new expression rule called **testRule** and use it to perform the tasks listed.

**Exercise 1: Return a random value of true or false**

Return a random number between 0 and 1, round the value, and convert it to a boolean

1. Return a random number using the rand() function.
2. Use the round() function to return either 0 or 1.
3. Convert the value to a boolean using the toboolean() function.

**Exercise 2: Return the day of the week of a given date**

Based on a selected date, show the corresponding day of the week in 3 day format (e.g. MON, TUE)

1. Create a rule input of data type date.
2. Find the weekday() of the date, which should return a number 1-7.
3. Use displayvalue() to match the number of the weekday to a list of days.
   1. Create a constant to store the a list of the following days of the week: SUN, MON, TUE, WED, THU, FRI, SAT.
   2. Use enumerate to return an array of numbers used as the array to match the weekday number. *Hint: Enumerate returns an array of {0,1,...,n-1}, so make sure to add 1 to create an array of {1,2,...,n}.*
   3. Use “” as the placeholder value.

**Exercise 3: Convert date/time to ISO format**

Suppose you have process integration that requires a date to be displayed using the ISO Format. In this format, 3/24/2016 4:27:05 PM would be displayed as 2016-03-24T16:27:05. Use several date functions to return the individual components and format the date as necessary for this process. Keep in mind the ISO Format will display the date as text.

1. Create a rule input of date and time. *Hint: You can use now() to test the current date and time.*
2. Use the functions year(), month(), day(), hour(), minute(), and second() to return each component and concatenate them together.
3. The ISO format requires a zero in front of any numbers less than 10, so create a supporting rule that will check if any values are less than 10 and apply it to each component of this rule.
4. Try using the text function to define the same final result using a different method. *Hint: View the documentation for text functions to see how to return year, month, day, hour, minute, and second:* [*https://forum.appian.com/suite/help/16.1/Text\_Functions.html#text.28.29*](https://forum.appian.com/suite/help/16.1/Text_Functions.html#text.28.29)