Python Module 4:
Boolean Expressions

1. Write a program that calculates

   $$|x^3 - 4x^2 + x - 2|$$

   if the user inputs the variable “x”

2. The code fragment on the right shows how you test whether a number is divisible by another number. Write a program that asks the user for an integer as input and then prints out whether the number is divisible by 2 or by 3. For example, if the user inputs 7, then the answer is: “The number is not divisible by either 2 or 3”, if the user inputs 8, then the answer is: “The number is divisible by 2 but not by 3.”, and if the user inputs 9, then the answer is: “The number is divisible by 3 but not by 2.”

```
if x%y == 0:
      print(x,"is divisible by",y)
else:
      print(x,"is not divisible by",y)
```

3. A program that asks for input from the user and decides whether the input contains the letters “y” or “Y”. You can check whether a letter is contained in the string by using the in-keyword in order to generate a condition: `'y' in "qewriouy"`

4. Write a program that asks the user for numeric input *x* and reports whether

   $$x^3 - x^2 + x - 1$$

   is larger than 2 or not.

5. Write a program that asks the user for input *x* and then prints out the value of

   $$|x^2 - 4| + |x^3 - 1.9|.$$

   Below, you can find the graph of the function.