2.1

Q1)

INPUT

```
import math

def evaluate_equation(x):
    if x == 1 or x == -1:
        print("The value for x does not yield a defined result = 1 or x = -1")
    else:
        result = 2 * math.pi * (x**2 - 3*x) / (x**2 - 1)
        print(f"The outcome derived from the equation when considering the value of x = {x} is: {result}")

# Provide a real number as an input.
x_value = float(input("Please input a real number(excluding 1 or -1): "))
evaluate_equation(x_value)
```

OUTPUT

```
Python 3.8.8 (default, Apr 13 2021, 15:08:03) [MSC v.1916 64 bit (AMD64)]
Type "copyright", "credits" or "license" for more information.

IPython 7.22.0 -- An enhanced Interactive Python.

In [1]: runfile('C:/Users/rm6197r/.spyder-py3/temp.py', wdir='C:/Users/rm6197r/.spyder-py3')

Please input a real number(excluding 1 or -1): 25
The outcome derived from the equation when considering the value of x = 25.0 is: 5.538063972674315

In [2]:
```

CODE WRITTEN:

```
import math


def evaluate_equation(x):
    if x == 1 or x == -1:
        print("The value for x does not yield a defined result = 1 or x = -1")
    else:
        result = 2 * math.pi * (x**2 - 3*x) / (x**2 - 1)
        print(f"The outcome derived from the equation when considering the value of x = {x} is: {result}")


# Provide a real number as an input.
x_value = float(input("Please input a real number(excluding 1 or -1): "))
evaluate_equation(x_value)
```

EXPLANATION

The function evaluate_equation(x), defined in this code, determines the answer to a certain equation for a given input x. In order to evaluate the equation, it takes the user-supplied input value and restricts it so that x cannot equal 1 or -1, which would result in an undefined equation.

The code alerts the user that the equation is undefined for values x if it is either 1 or -1. If not, it uses the input x to compute the equation's result and shows the result.

Lastly, the code invokes the evaluate_equation() function to compute and show the result based on the input provided, and prompts the user to enter a real value (apart from 1 or -1).