Q1)   **Assuming 1000000 as +ve infinity and -1000000 as -ve infinity**

Stirlings approximation

Differences in actual and Stirling Approximation
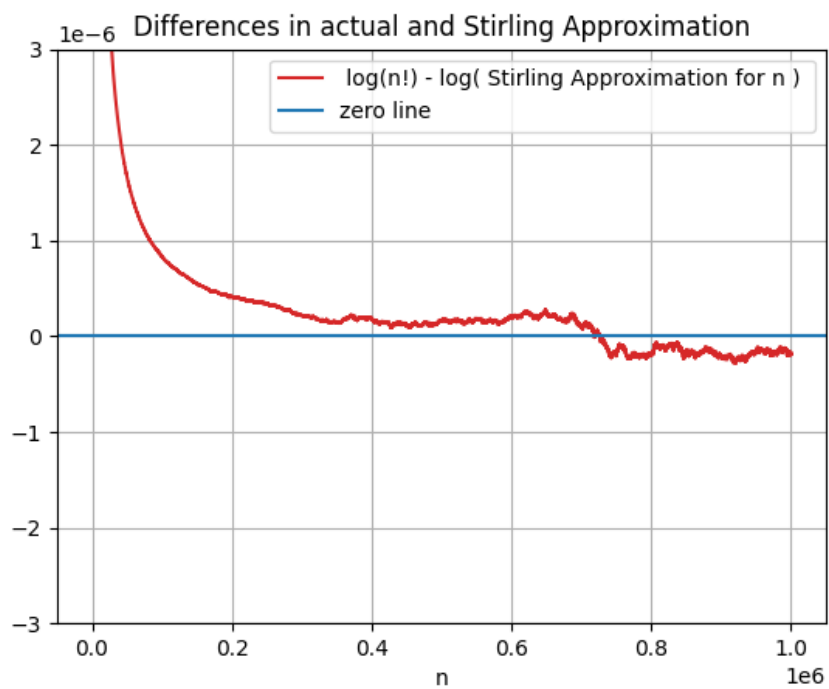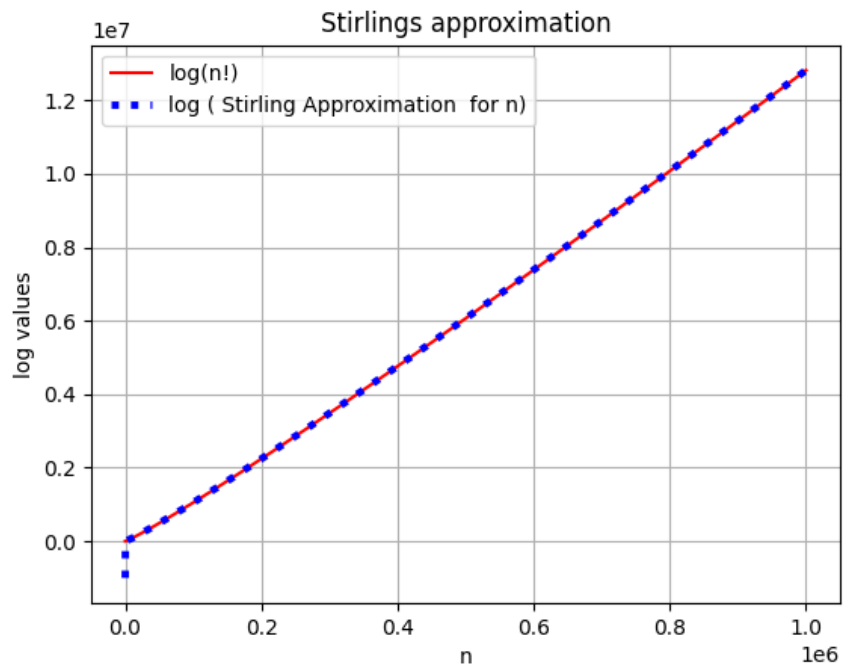
Q2) Checking up to 5 precisions for floating point error.

```
d = Dice(3)
```

```
<class 'Exception'>
Cannot construct the dice
```

```
d = Dice(4.5)
```

```
<class 'Exception'>
Cannot construct the dice
```

```
d = Dice('5')
```

```
<class 'Exception'>
Cannot construct the dice
```

```
d = Dice(4)
d.setProb((0.1, 0.2, 0.3))
```

```
<class 'Exception'>
Invalid probability distribution
```

```
d = Dice(4)
d.setProb((0.5, 0.2, 0.3, 0.4))
```

```
<class 'Exception'>
Invalid probability distribution
```

```
d = Dice(5)
print(d)
```

```
Dice with 5 faces and probability distribution {0.2, 0.2, 0.2, 0.2, 0.2}
```
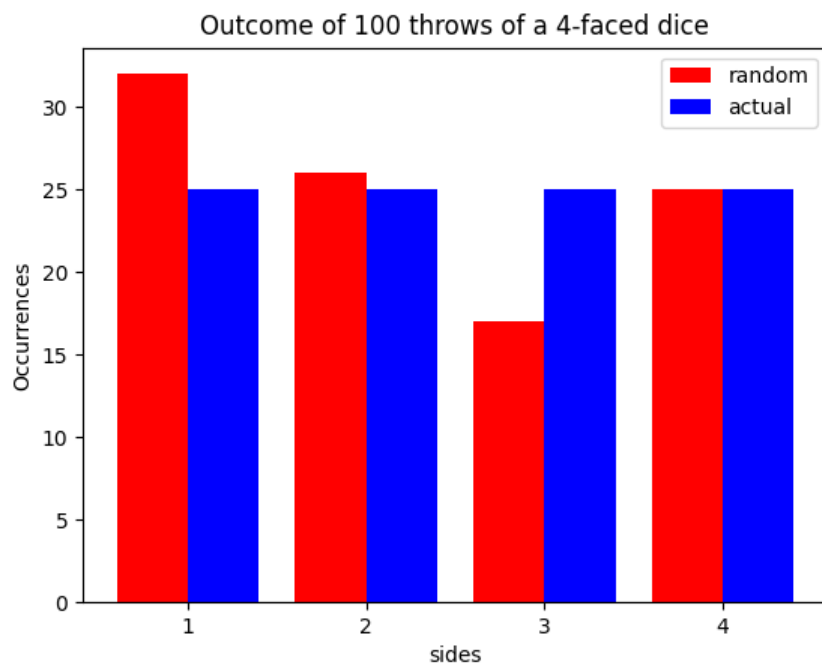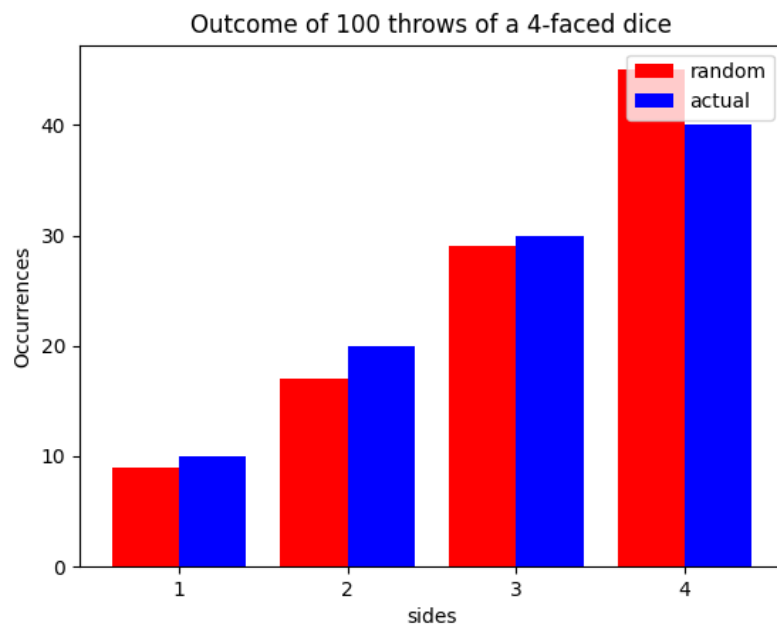
```
d = Dice(4)
d.setProb((0.1, 0.2, 0.3, 0.4))
print(d)
```

```
Dice with 4 faces and probability distribution {0.1, 0.2, 0.3, 0.4}
```
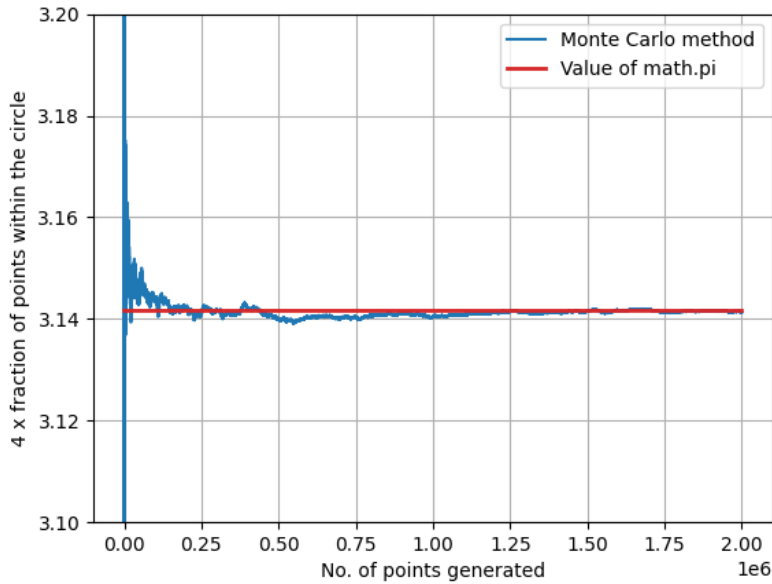
```
d = Dice(4)
d.roll(100)
```


Outcome of 100 throws of a 4-faced dice

```
d = Dice(4)
d.setProb((0.1, 0.2, 0.3, 0.4))
d.roll(10000)
```


Outcome of 100 throws of a 4-faced dice

Q3)

Q4)

```
t = TextGenerator()
t.assimilateText('sherlock.txt')
t.generateText(100)
```

picked it up and down the Waterloo Bridge Road we crossed over the matter but, above all, take care of her carriage rattle off down the ill-trimmed lawn and vanished into the easy-chair and, sitting beside him, patted his hand as if you would call over here is the right side." "The right side? You're mad! Here is the stone; the stone pavement. Then it was his singular character the dual nature alternately asserted itself, and his worn boots, he was exceedingly pale and worn. He walked swiftly round from one to turn to—none, save only one, who cares for

```
t = TextGenerator()
t.assimilateText('sherlock.txt')
t.generateText(50, 'London')
```

London street. Looking over his shoulder. The envelope was a very simple test if we drive to Waterloo. Sir, I can imagine." "You saw the cadaverous face of Miss Mary Sutherland, and to consult you as a tinker's. Well, when once she had been a strong balance of probability. That

```
t = TextGenerator()
t.assimilateText('sherlock.txt')
t.generateText(50, 'Wedge')
```