Sunny Lee

1. (a) Using Newton's method:
   In the interval $[0, \frac{1}{2}]$

```
ans =

0.206035119570965851228807294890 32
```

   In the interval $[\frac{1}{2}, 1]$

```
ans =

0.681974808738647499452582854821 77
```

   (b) Using Secant method:
   In the interval $[0, \frac{1}{2}]$

```
ans =

0.206035119570963843491226186969 31
```

   In the interval $[\frac{1}{2}, 1]$

```
ans =

0.681974808738623312761535482384 64
```

   (c) Using False Point method:
   In the interval $[0, \frac{1}{2}]$

```
ans =

0.206035120321545873989129747177 87
```

   In the interval $[\frac{1}{2}, 1]$

```
ans =

0.681974808617512195776249891299 71
```

2. (a) Using Newton's method:
   In the interval $[-\frac{1}{2}, \frac{1}{2}]$

```
ans =

-0.040659288315758862344103186113775
```

In the interval $[\frac{1}{2}, 1.5]$

```
ans =

0.96239841875054147129290376071603
```

(b) Using Secant method:
In the interval $[-\frac{1}{2}, \frac{1}{2}]$

```
ans =

-0.040659288315842756405405106526416
```

In the interval $[\frac{1}{2}, 1.5]$

```
ans =

0.96239841874706878517039988867947
```

(c) Using False Point method:
In the interval $[-\frac{1}{2}, \frac{1}{2}]$

```
ans =

-0.040659262761674050469978125648881
```

In the interval $[\frac{1}{2}, 1.5]$

```
ans =

0.96239697556888157404426312981998
```

3. The simpler formulation of the secant method only involves a fraction as the p_n, so if the two terms in the numerator are very close, the machine might round down to zero setting our p_n to be zero. The formulation given in the book, however, if the numerator terms round to zero, p_n will be equal to p_{n-1} thus our p_n will not jump to zero if the two numerator terms are very close to one another.