```
soln_analytical = 14 / 3
```

```
soln_analytical = 4.6667
```

```
a = 0
```

```
a = 0
```

```
b = 3
```

```
b = 3
```

```
n = 10
```

```
n = 10
```

```
dx = (b - a) / n
```

```
dx = 0.3000
```

```
left_riemann_sum = sum(sqrt((a + ((1:n) - 1) .* dx) + 1) .* dx)
```

```
left_riemann_sum = 4.5148
```

```
right_riemann_sum = sum(sqrt((a + (1:n) .* dx) + 1) .* dx)
```

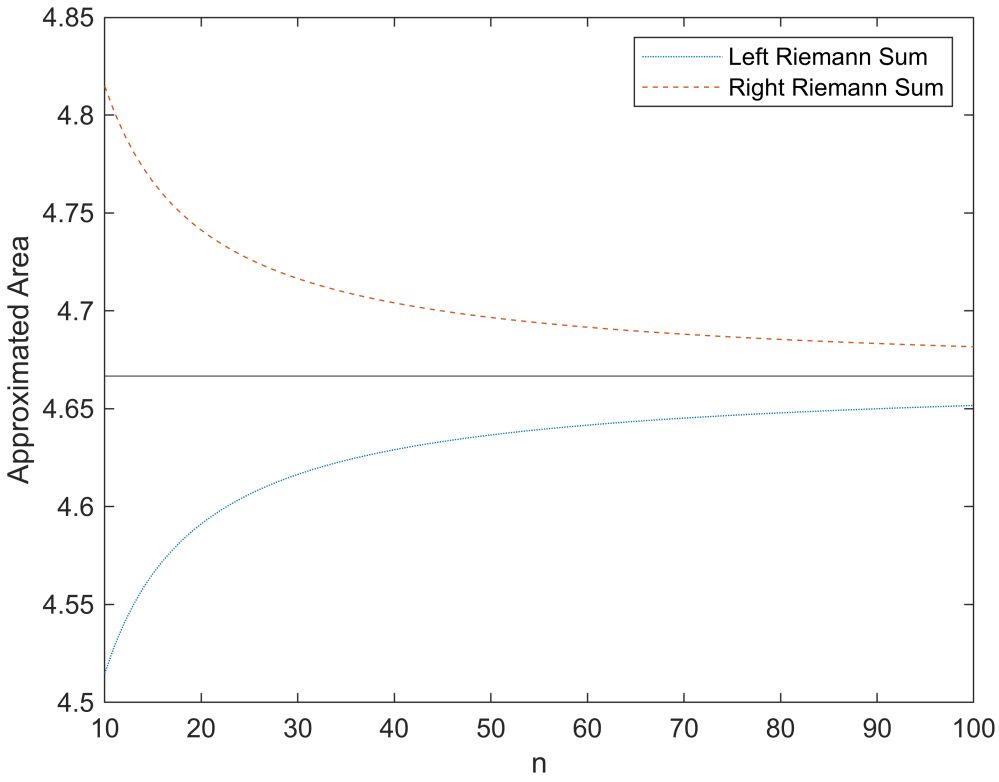
```
right_riemann_sum = 4.8148
```

```
Ln = zeros(1, 90);
Rn = zeros(1, 90);

for m = 10:100
   dx = (b - a) / m;
   left_riemann_sum = sum(sqrt((a + ((1:m) - 1) .* dx) + 1) .* dx);
   Ln(m - 9) = left_riemann_sum;
   right_riemann_sum = sum(sqrt((a + (1:m) .* dx) + 1) .* dx);
   Rn(m - 9) = right_riemann_sum;
end

plot((10:100), Ln, ":")
hold on
plot((10:100), Rn, "--")
yline(soln_analytical)

legend("Left Riemann Sum", "Right Riemann Sum")
ylabel("Approximated Area")
xlabel("n")
```


Left Riemann Sum
Right Riemann Sum
Approximated Area
n
4.85
4.8
4.75
4.7
4.65
4.6
4.55
4.5
10
20
30
40
50
60
70
80
90
100