```
g[x_] := 0.5 Exp[-x];
y = x;
Plot[{g[x], y}, {x, 0, 1}];
FindRoot[g[x] == x, {x, 0.1}]
NSolve[g[x] == x, x]
```

```
{x → 0.351734}
```

MessageTemplate[NSolve, ifun, Inverse functions are being used by NSolve, so some solutions may not be found; use Reduce for complete solution information., 2, 52, 9, 24452911569732780067, Local]

```
{{x → 0.351734}}
```

```
x1 = 0.5 Exp[-0]
x2 = 0.5 Exp[-x1]
x3 = 0.5 Exp[-x2]
x4 = 0.5 Exp[-x3]
x5 = 0.5 Exp[-x4]
x6 = 0.5 Exp[-x5]
x7 = 0.5 Exp[-x6]
x8 = 0.5 Exp[-x7]
```

```
0.5
```

```
0.303265
```

```
0.369202
```

```
0.345643
```

```
0.353883
```

```
0.350979
```

```
0.351999
```

```
0.35164
```

```
y = 0;
Do[{x = 0.5 Exp[-y], y = x, Print[y]}, 15]
```

```
0.5
0.303265
0.369202
0.345643
0.353883
0.350979
0.351999
0.35164
0.351767
0.351722
0.351738
0.351732
0.351734
0.351734
0.351734
```

```
?? While
```

While[*test*, *body*] evaluates *test*, then *body*, repetitively, until *test* first fails to give True. ≫

```
Attributes[While] = {HoldAll, Protected}
```

```
y = 0; n = 1; While[n < 15, {x = 0.5 Exp[-y], y = x, Print[y]}; n++]
0.5
0.303265
0.369202
0.345643
0.353883
0.350979
0.351999
0.35164
0.351767
0.351722
0.351738
0.351732
0.351734
0.351734
```