

```
In[ ]:= (* Solve for the payment size for the $900000 mortgage *)
(1 / .0447) - (1 / (.0447 * ((1.0447) ^ 25)))
```

```
Out[ ]:= 14.874104
```

```
In[ ]:= 900000 / %
```

```
Out[ ]:= 60507.8463
```

```
In[ ]:= (* Solve for the payment with the mortgage premium *)
(900000 * 1.031)
```

```
Out[ ]:= 927900.
```

```
In[ ]:= % / 14.874
```

```
Out[ ]:= 62384.0258
```

```
In[ ]:= (*Solve for the interest rate with this notional payment *)
f[y_] := ((1 / y) - (1 / (y * ((1 + y) ^ 25))))
NSolve[f[y] == (900000 / 62384.03), y, Reals]
```

```
Out[ ]:= {{y -> 0.0476855741}}
```

```
(* Add in the transfer tax to the mortgage *)
```

```
In[ ]:= (200000 * .01) + (800000 * .02)
```

```
Out[ ]:= 18000.
```

```
In[ ]:= (927900 + 18000) / 14.874
```

```
Out[ ]:= 63594.1912
```

```
In[ ]:= NSolve[f[y] == (900000 / 63594.19), y, Reals]
```

```
Out[ ]:= {{y -> 0.0495886426}}
```