```
h = 0.01;
A = 750000;
p = 4000;
i = 1;
aprox = zeros(1,3041);
r = 0.05;
time = 0;

tv_vec = []
```

```
tv_vec =

     []
```

```
while A > 0
    aprox(i) = A;
    ap = (r * A) - (12 * 4000);
    A = A + (h * ap);
    i = i + 1;
    tv_vec = [tv_vec func(p,r,750000, time)];
    time = time + h;

end
aprox(i) = A
```

```
aprox = 1@3042

10^5 @

    7.5000    7.4989    7.4979    7.4968    7.4958    7.4947    7.4937    7.4926    7.4916    7.4905    7.4895
```

```
tv_vec(i) = tv_vec(i-1);
A
```

```
A = -282.5196
```

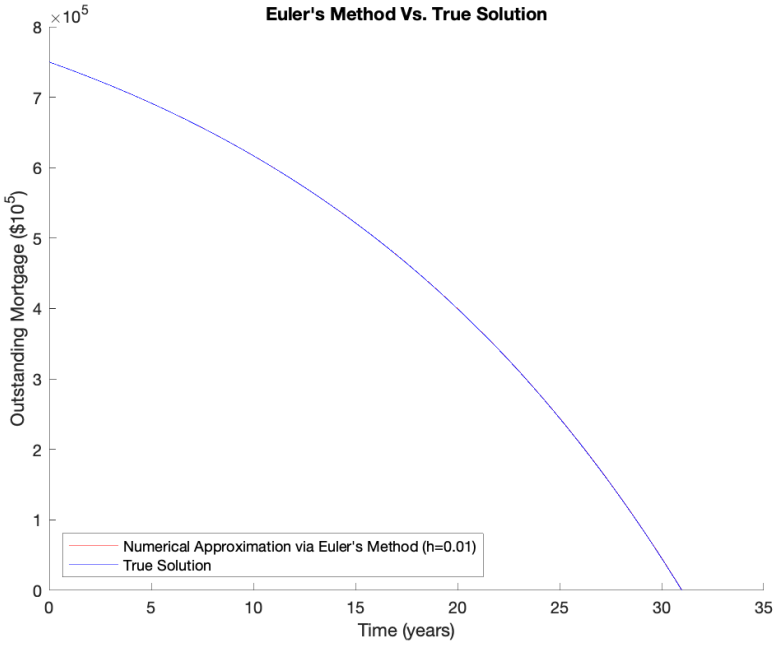
```
i
```

```
i = 3042
```

```
time
```

```
time = 30.4100
```

```
figure;
title("Euler's Method Vs. True Solution")
ts = linspace(0,31,3042);
hold on
%plot(ts,aprox,'r',ts,960000-210000*exp(0.05.*ts),'b')
plot(ts,aprox,'r',ts,tv_vec,'b')
legend("Numerical Approximation via Euler's Method (h=0.01)","True Solution","location", "southwest")
xlabel("Time (years)")
ylabel("Outstanding Mortgage ($10^5)")
ylim([0 8e5])
hold off
```




```
function trueVal = func(p, r, A0, t)
    trueVal = (12*p - exp(r*t)*((12*p)-r*A0))/r;
end
```