

Here are two of the examples from class today (Friday, July 23):

```
> g:=x->(x+a/x)/2;
```

$$g := x \mapsto \frac{1}{2}x + \frac{1}{2}\frac{a}{x}$$

```
> a:= 2;
```

$$a := 2$$

```
> x:=2;
```

$$x := 2$$

```
> for j from 1 to 5 do  
  x:=evalf(g(x));  
od;
```

```
>
```

$$x := 1.500000000$$

$$x := 1.416666667$$

$$x := 1.414215687$$

$$x := 1.414213563$$

$$x := 1.414213563$$

Pretty fast!

```
> f:=x->x-(1/10)*(x^2-a);
```

$$f := x \mapsto x - \frac{1}{10}x^2 + \frac{1}{10}a$$

```
> x:=2;
```

$$x := 2$$

```
> for i from 1 to 30 do  
  x:=evalf(f(x));  
od;
```

$$x := 1.800000000$$

$$x := 1.676000000$$

$$x := 1.595102400$$

$$x := 1.540667233$$

$$x := 1.503301681$$

$$x := 1.477310087$$

```
x := 1.459065578
x := 1.446178342
x := 1.437035162
x := 1.430528156
x := 1.425887076
x := 1.422571681
x := 1.420200662
x := 1.418503670
x := 1.417288404
x := 1.416417762
x := 1.415793834
x := 1.415346616
x := 1.415026012
x := 1.414796151
x := 1.414631336
x := 1.414513154
x := 1.414428408
x := 1.414367636
x := 1.414324055
x := 1.414292802
x := 1.414270389
x := 1.414254316
x := 1.414242789
x := 1.414234522
```

Pretty slow--and we're still not there.

[>