cd sep04 ls \$ julia _ _(_)_ _ _ | Documentation: https://docs.julialang. org Type "?" for help, "]?" for Pkg help. Version 1.6.7 (2022-07-19) Official https://julialang.org/ releas aring a laptop load Plots library by pressing e [] key to get Τt the (@v1.6) pkg> and then type (@v1.6) pkg> add Plots Don't do this in lab. julia> Xs=0:0.01:2 0.0:0.01:2.0 $julia > f(x) = x^2 - 2$ f (generic function with 1 method) julia> plot(Xs,f.(Xs))

$$J_{\text{transform}} = \int_{-\infty}^{-\infty} \int_{-\infty}^{\infty} \int_{-\infty}^{\infty}$$

<pre>julia> sqrt(2) 1 4142135623730951</pre>	
1.4142133023730331	
julia> xn=g(xn)	
1.4142133042133043	
<pre>julia> xn=g(xn)</pre>	
1.4142135623/30951	

A generic function can take arguments with different types and a new version of that function is compiled to machine code for each type as needed...

julia> xn=g(xn)
1.4142135623730951

```
julia> typeof(xn)
BigFloat
```

julia> xn=g(xn)
1.414213564213564213564213564213564213564213564213564213564213564213564213564213564213564213564214

<mark>julia></mark> xn=g(xn) 1.41421356237309504999928957890286393934167006969415009821111550 61514737041496

julia> xn=g(xn)
1.41421356237309504880168872420969807907675505054997081814555605
468594543448437

julia> xn=g(xn)
1.41421356237309504880168872420969807856967187537694807317667973
7990732478553006

julia> xn=g(xn)
1.41421356237309504880168872420969807856967187537694807317667973
7990732478462102

julia> xn=g(xn)
1.41421356237309504880168872420969807856967187537694807317667973
7990732478462102

The number of correct digits double at each iteration so it only takes a few iterations to obtain 80 correct digits.