```matlab
i=1;
M=linspace(0.5,2,200);
for k=linspace(0.5,2,200)
 if k==0.5
 sol=secant(@f,k,1.1*k,k);
 xpre=sol;
 A(i)=sol;
 else
 sol=secant(@f,xpre,xpre*1.1,k);
 xpre=sol;
 A(i)=sol;
 end
 i=i+1;
end
plot(M,A,'r.')



function sol=secant(F,x0,x1,k)
f0=F(x0,k);
f1=F(x1,k);
rat=1;
while rat>1.0e-8
 dx=(x1-x0)*f1/(f1-f0);
 x2=x1-dx;
 rat=abs(dx/x2);
 x0=x1;
 x1=x2;
 f0=f1;
 f1=F(x2,k);
end
sol=x2;
end
function f=f(x,k)
f=((2.5*k^2-x^2)^0.5)*tan((2.5*k^2-x^2)^0.5)-(x^2-k^2)^0.5;
end
```
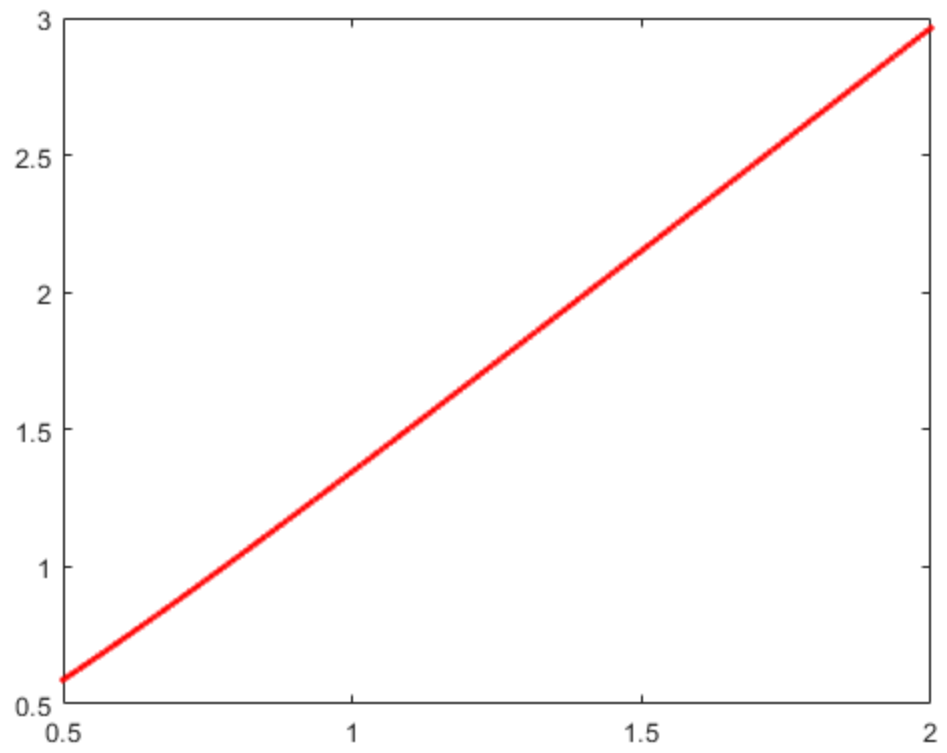
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