
```
clc
syms f(x)
f(x)=2*x*sqrt(4-x^2)
df=diff(f,x)
cv=solve(df,x)
d2f=diff(df,x)
for i=1:length(cv)
    d2fval=subs(d2f,x,cv(i))
    if d2fval<0
        fprintf('%f is a point of maximum\n',cv(i))
    elseif d2fval>0
        fprintf('%f is a point of minimum\n',cv(i))
    else
        fprintf('%test is not a conclusive\n')
    end
end
end
```

$f(x) =$

$$2x(4 - x^2)^{1/2}$$

$df(x) =$

$$2(4 - x^2)^{1/2} - (2x^2)/(4 - x^2)^{1/2}$$

$cv =$

$$\begin{array}{l} 2^{1/2} \\ -2^{1/2} \end{array}$$

$d2f(x) =$

$$-(2x^3)/(4 - x^2)^{3/2} - (6x)/(4 - x^2)^{1/2}$$

$d2fval(x) =$

$$-8$$

1.414214 is a point of maximum

$d2fval(x) =$

$$8$$

-1.414214 is a point of minimum

Published with MATLAB® R2023b