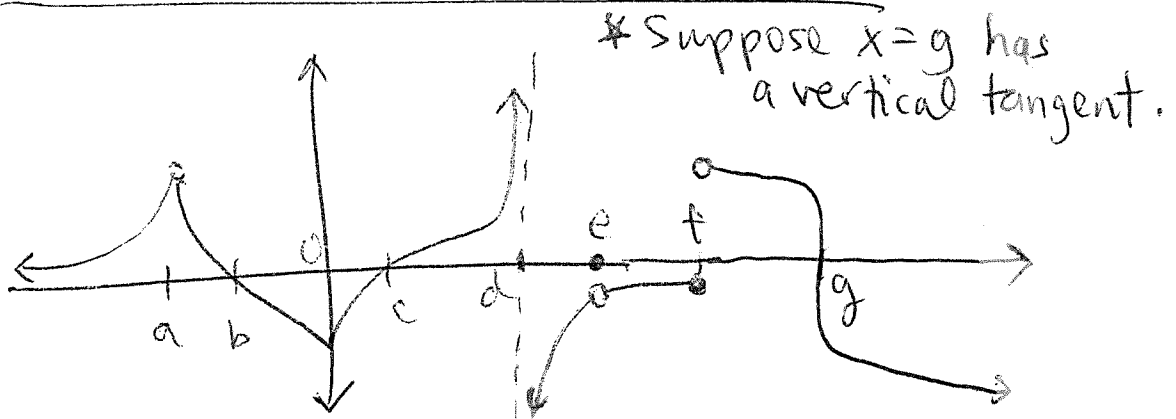


Ch. 3 Day 2 Study Session

76) Let $f'(x) = \frac{\sin(0.5x)}{x^3 + 1}$

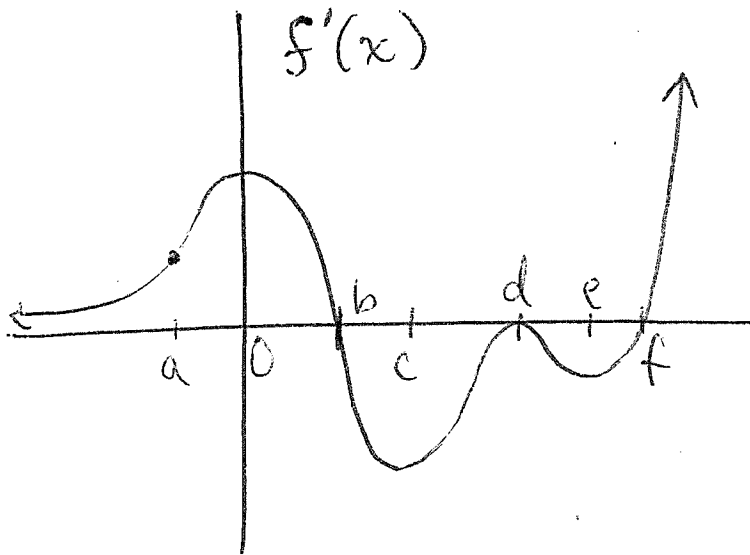
Find POI of $f(x)$ on $[0, 10]$.

77) Where does the limit ^{not} exist?

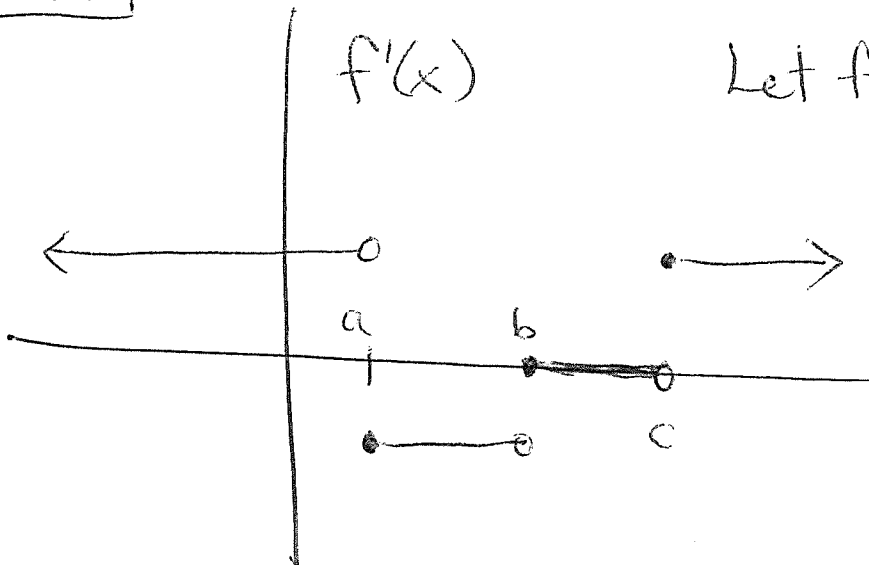


JFF Where not differentiable?

78 Find relative max on f .

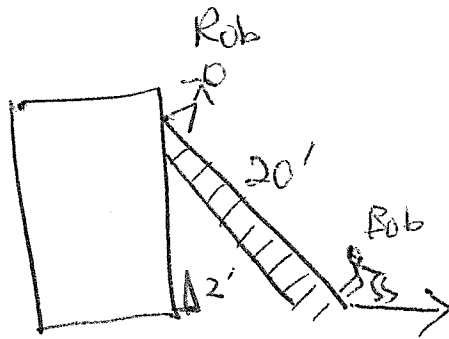


JFF



Let f be continuous.

79



Pulls away at a rate of 5 ft/sec.

How fast is Rob falling when hits the 2ft sword?

(80)

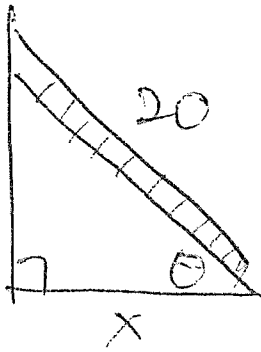
Same picture as #79

How fast is the area changing
when $y = 2$?

(a) Do this without using
your answer from #79.

80^b Another way. Do this by using
your answer from # 79.

81



Given:

$$\frac{dx}{dt} = 5.$$

Find $\frac{d\theta}{dt}$ when $x = 16$.

82 Find the signs of f' and f'' .

x	y
0	5
1	10
2	12
3	13

x	y
0	13
1	12
2	10
3	5

x	y
0	5
1	10
2	15
3	20

For f'' : Don't look at the magnitude of change. Look at the actual values of each Δy .

- If the Δy values incr, then f' increases, which means $f'' > 0$. (which also means f concaves up)
- If the Δy values decr, then f' decreases, which means $f'' < 0$. (which also means f concaves down)
- If the Δy values are constant, then f' doesn't change, which means $f'' = 0$.
Usually if $f'' = 0$ then f has a POI. That is true if $f'' = 0$ for only one pt with sign changes.
If $f'' = 0$ for an interval, then f is linear.

83 Know MVT and ROLLÉ's Thm and IVT.

Go over #6 & #8 on MVT Wkst

(84)

How many relative extrema
for $f' = \sin(x^2 - x)$ on $[2, 4]$?

← always
assume
on $f(x)$.

(85)

If $v(t) = t^3 + 1$, find the
acceleration at $t = 2$.

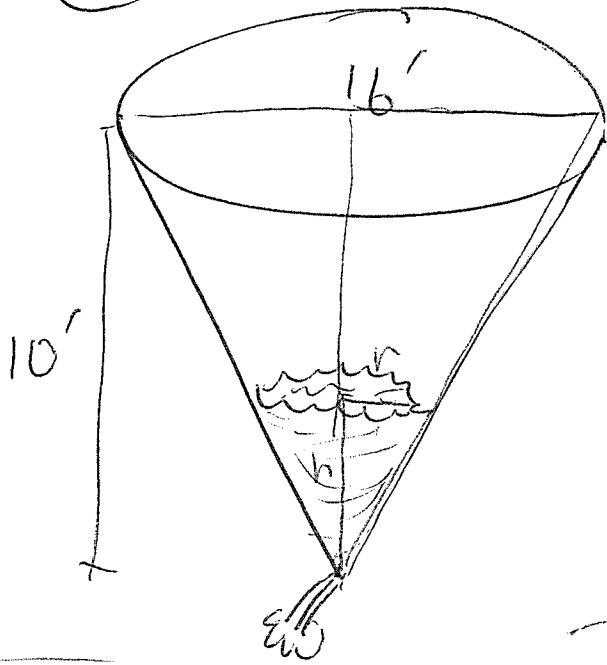
86 If $h(x) = \frac{f(x)}{g(x)}$ and

$h'(x) = \frac{1}{[g(x)]^2}$ and $f(x)$ is a constant,

find $g'(x)$.

(87) Find the equation of the
tangent line of $f(x) = x^2 - 2x^4$
if $f'(x) = 2$.

88



Water leaking

~~is~~ $2 \text{ ft}^3/\text{min}$.

How is the water level ~~depth~~

changing by the instant

the depth is 3 ft?

Also do # ~~33~~ to # 40

~~on~~ on the Ch 3 Practice

Test.