Calculator part

#2 $f(7.05)-f(7) = \Delta f$

$df = f'(7) \cdot .05$

#3 $f(x)=\frac{1}{x}$ $f'(x)=-\frac{1}{x^2}$

$\left|\underbrace{(f(3.4)-f(3))}_{\Delta f}-\underbrace{(f'(3)\cdot.04)}_{df}\right|$

#4 $\frac{dr}{dt}=6$ $\frac{dh}{dt}=-3$

want: $\frac{dV}{dt}$ when $r=5, h=11$

$V=\pi r^2 h$

$\frac{dV}{dt}=\pi\left(2rh\frac{dr}{dt}+r^2\frac{dh}{dt}\right)$

$=\pi(2\cdot5\cdot11\cdot6+25\cdot-3)$

$=585\pi$

#6 $y = 4\sin(0.2x) - 4\cos(0.3x)$

$0 \le x \le 9$

$y' = 0.8\cos(0.2x) + 1.2\sin(0.3x)$

$$\frac{y(9)-y(0)}{9-0} = y'\Big|_{x=c}$$

Non-calculator

#1 $f'(x) = 6x^3 + 7x^2 - 20x$

$= x(6x^2 + 7x - 20)$

$= x(3x-4)(2x+5)$

$x = 0 \quad x = \frac{4}{3} \quad x = -\frac{5}{2}$

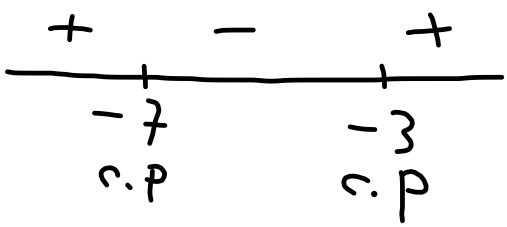
#2 $x + \frac{27}{x}$ $[3, 9]$

$f(9) = 12$

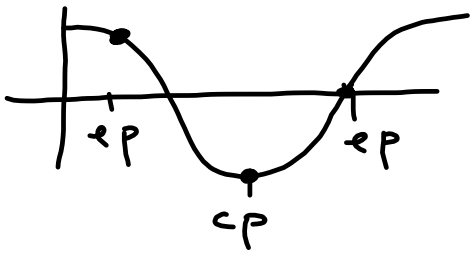
$f(3) = 12$ $f'(c) = 0$

$f'(x) = 1 - \frac{27}{x^2}$

#3 sign y'

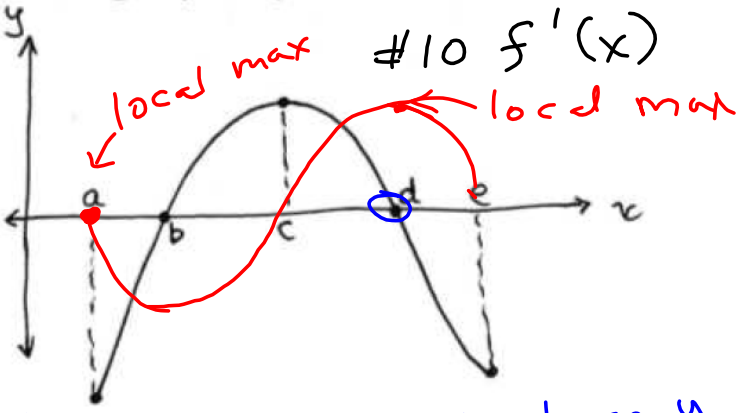


#7



$\cos\left(\frac{\pi}{4}\right) = \frac{\sqrt{2}}{2}$

graph of a function



#10 $f'(x)$

local max: point where y value is greater than that of other points in the neighborhood