Lecture 12 29 Jul

4)-1 b) = $\frac{8}{3}$

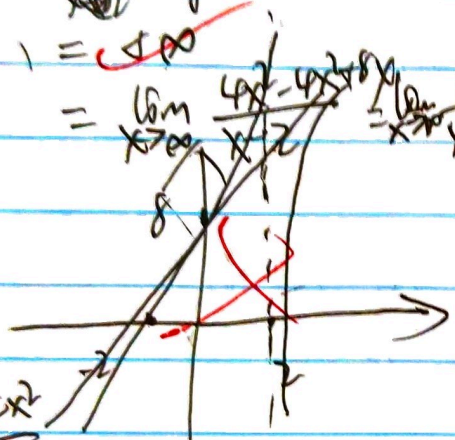
c) DNE

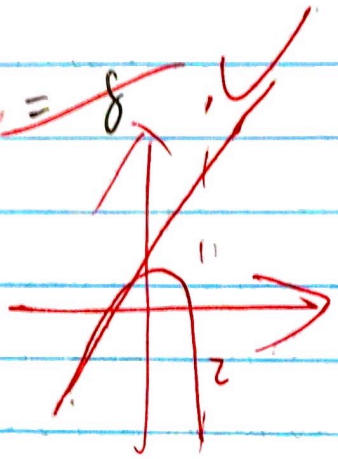
e) = $\frac{64}{0^+}$ = $+\infty$

f) = $+\infty$

g) = $\lim_{x\to 2} \frac{4x^3-4x^2+8x-8}{x-2}$ = $\lim_{x\to 2} \frac{8x}{x-2}$ = 8

4a)





$y = \frac{4x^2}{x-2}$

IL-2 $f'(a) = \lim_{\delta x\to 0} \frac{f(a+\delta x)-f(a)}{\delta x}$ = $\lim_{\delta x\to 0} \frac{\delta x\, g(a+\delta x)}{\delta x}$ = $\lim_{\delta x\to 0} g(a+\delta x)$

$\because g(a)$ is continuous

$\therefore g(a) = \lim_{\delta x\to 0} g(a+\delta x)$

1)-3 a) removable $x=2$; infinite $x=-2$

b) removable $x=0$.

c) jump $x=0$.

b a) $f(x) = \begin{cases} 2x+4 & x\geq 0 \\ a & x<0 \end{cases}$

$2x+4=a$ at $x=0$

$\therefore a=4$ $b\in\mathbb{R}$.

8(a) $b=0$

$f'(x) = \begin{cases} a & x>0 \\ 2\cos 2x & x<0 \end{cases}$

$a = 2\cos 2x \quad \cos x = 0$

$a = 2$ $\therefore \begin{cases} a=2 \\ b=0. \end{cases}$

$a \neq 2$.