College of Sciences	King Fahd University of Petroleum & Minerals	Department of Mathematical Sciences	
Name:	**Quiz-2 Form A** **MATH 101**	**ID:**	SEC: 11 28

1) $\lim_{h\to 0}\frac{h}{\tan(h)} = \lim_{h\to 0}\frac{h}{\sinh/\cosh} = \lim\frac{h}{\sinh}\cdot\lim\cosh = (1)\cdot(1) = 1$ 3/3

a) 0 **b) 1** c) -1 d) $+\infty$ e) $-\infty$

2) $\lim_{x\to 0}\frac{x^2}{1-\cos x}\cdot\frac{1+\cos x}{1+\cos x} = \lim\frac{x^2(1+\cos x)}{\sin^2 x} = \lim_{x\to 0}\frac{x^2}{\sin^2 x}\cdot\lim_{x\to 0}(1+\cos x) = (1)^2\cdot(2) = 2$ 3/3

a) 0 b) 0.5 c) -0.5 **d) 2** e) -2

True of False

search

3) It is impossible to find a function f with $f'_+(x_0)=3$ and $\lim_{x\to x_0^-} f(x) = +\infty$. T

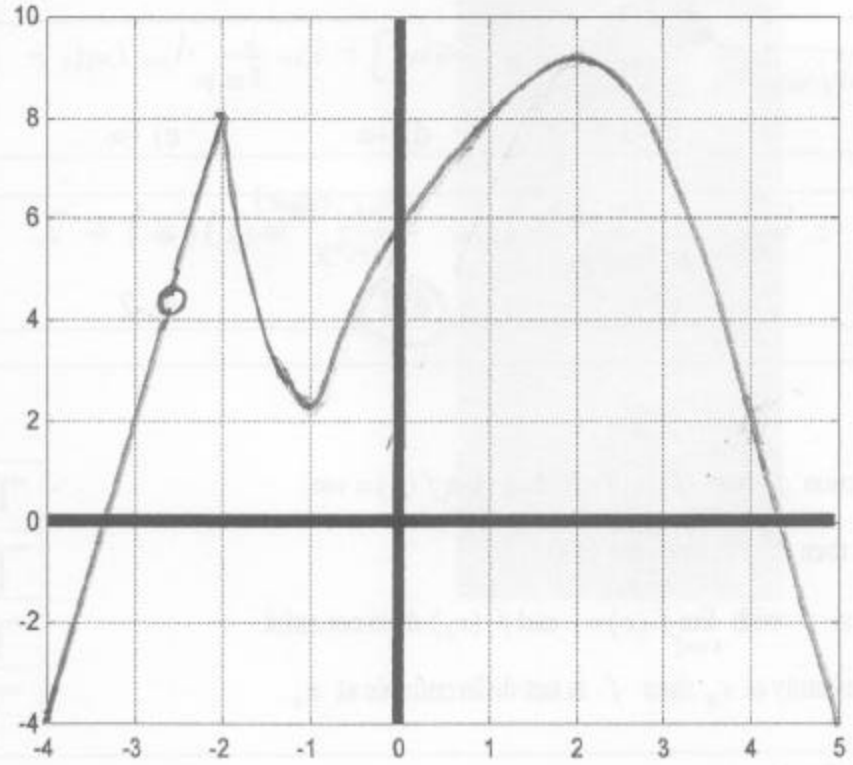
4) If $\lim_{x\to x_0^+} f(x)$ does not exist then $f'_+(x_0)$ does not exit. T

5) It is possible to find a function f with $\lim_{x\to x_0^-} f(x)=1$ and $f'_-(x_0)$ does not exist. T

6) If f has a removable discontinuity at x_0 then f is not differentiable at x_0. T

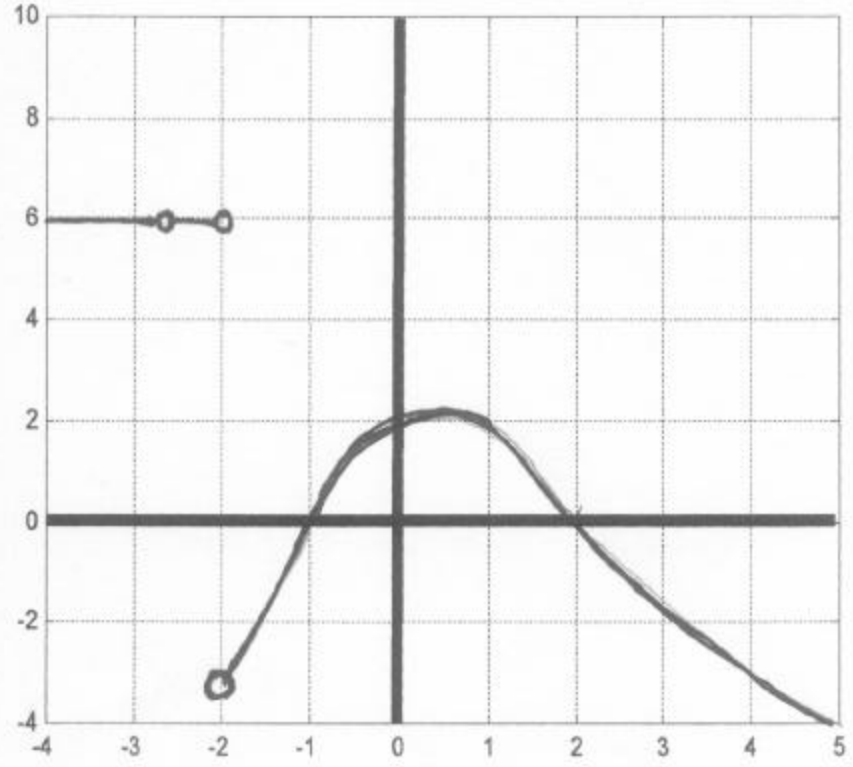
7) Find $\lim_{x\to+\infty}\frac{2x+x\sin(3x)}{5x^2-2x+1}$ (See Form B for solution) 16/16

8) Sketch the graph of the derivative of the function whose graph is shown.



Form A

$f(x)$



$f'(x)$