آیین غفتری لسوادکوهی

۱-

$\lim_{x\to 0} \frac{f(x)-f(0)}{x-0} = 0 \Rightarrow b=0$

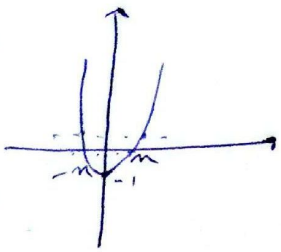
$f'(x) = 2\times 2\times \cos^2(2x)\times(-\sin 2x) + 2a$ ← $x=0$

$f'(0)=0$

$\lim \frac{f(x)-f(0)}{x-0} = 2$ $\quad f''(0)=2$ $\quad f''(x) = \dots (-\sin 2x)\dots + 2a$

$f'(0) = 2 = 2a \Rightarrow a=1$

۲-



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

$x=\frac{1}{2}$, $x=-\frac{1}{2}$

$\frac{1}{2}-1=\frac{2}{2}$

$\frac{1}{2}-1=\frac{2}{2}$

$\frac{2}{4}+\frac{2}{4}=\frac{4}{4}=1$

۳-

~~$\frac{2-(-1)^2}{-2}$~~

۴-

$y=2x+b \Rightarrow y'=2$

$y=\frac{x+a}{ax+1} \Rightarrow y'=\frac{1-a^2}{(ax+1)^2}$ $\xrightarrow{x=1}$ $\frac{1-a^2}{(a+1)^2}=\frac{1-a}{1+a}=2$

$1-a=2+2a \quad a=-\frac{1}{2}$

$\frac{x+\frac{1}{2}}{-\frac{1}{2}x+1}$ $\xrightarrow{x=1}$ $\frac{\frac{3}{2}}{\frac{1}{2}}=1$ $\quad 2x+b=1 \xrightarrow{x=1} b=-1$

$a-b=-\frac{1}{2}+1=\frac{1}{2}$

۵-

$f(m) = 2m^3 - 3m^2 - 12m + 1 \rightarrow f'(m) = 6m^2 - 6m - 12 = 6(m-2)(m+1)$ — ۶

	-1		2	
+		-		+
↗	۱	↘	-۱۹	↗

$\frac{\Delta y}{\Delta m} = \frac{27}{-3} = -9$ $\quad 6m^2 - 6m - 12 = -9 \rightarrow 6m^2 - 6m + 3 = 0$

طول نقاط $\leftarrow -\frac{1}{2}$ $\quad \frac{1}{2}$

— ۷

$y = m^3 + am^2 + bm - 1$

$y' = 3m^2 + 2am + b$

$y' = 6m + 2a = 0 \rightarrow 6m = -2a \rightarrow m = -\frac{a}{3} = -1 \quad a = 3$

$y = m^3 + am^2 + bm - 1 \xrightarrow{\substack{m=-1 \\ y=-4}} -4 = (-1)^3 + 3(-1)^2 + b(-1) - 1 \rightarrow -1 + 3 - b - 1 = -4$

$b = 0$

$m_b = \frac{3}{5} = 0.6$