【More Exercise】

一、Multiple Choice

1．Let $f(x)=(1-2x^3)^{10}$，then $f'(1)=$（　　）

A．0　　B．—1　　C．—60　　D．60

2 If $f(x)=2\ln x-x^2$，then the solution for $f'(x)>0$ is（　　）

A.$(0,1)$　　B.$(-\infty,-1)\cup(0,1)$　　C. $(-1,0)\cup(1,+\infty)$　　D.$(1,+\infty)$

3．Which of the following equations is incorrect（　　）

A.$\left(3x^2+\cos x\right)'=6x-\sin x$　　B. $\left(\ln x-2^x\right)'=\frac{1}{x}-2^x\ln 2$

C. $\left(2\sin 2x\right)'=2\cos 2x$　　D.$\left(\frac{\sin x}{x}\right)'=\frac{x\cos x-\sin x}{x^2}$

4．The derivative $y=\frac{5}{x^4+3x-8}$ is（　　）

A．$\frac{5}{4x^3+3}$　　B．0　　C．$\frac{5(4x^3+3)}{(x^4+3x-8)^2}$　　D．$-\frac{5(4x^3+3)}{(x^4+3x-8)^2}$

5. Given that the derivative of $f(x)$ is $f'(x)$，and $f(x)=x^2+3xf'(2)+\ln x$，then the value of $f'(2)$ is equal to（　　）

A.　2　　B.-2　　C.$\frac{9}{4}$　　D.$-\frac{9}{4}$

6．The tangent line of the function $y=\frac{x+1}{x-1}(x\neq 1)$ is perpendicular to the line ax+y+1=0 at（3，2），therefore, the value of a=（　　）

A．2　　B．$\frac{1}{2}$　　C．$-\frac{1}{2}$　　D．—2

7．The derivative of $y=\log_3\cos^2 x\ (\cos x\neq 0)$（　　）

A．$-2\log_3 e\cdot\tan x$　　B．$2\log_3 e\cdot\cot x$　　C．$-2\log_3 e\cdot\cos x$　　D．$\frac{\log_2 e}{\cos^2 x}$

二、Fill in the blank

8．The tangible function for y=sin x at $\left(\frac{\pi}{2},1\right)$ is_____。

10．$\left(\frac{x^3-1}{\sin x}\right)'=$_____，$\left[2x\sin(2x+5)\right]'=$_____。

11．In a rectangular plane coordinate system xOy，point P is on the curve C：

$y=x^3$—10x+3 上， and in the second quadrant. Given that the slope of the tangent line of curve C at point P is 2, then the coordinate of point P is _____.

三、Free Response

12．Given that $f(x)=\cos x$， $g(x)=x$， Find the value of x, so that $f'(x)+g'(x)\le 0$

13．（1） $y=\sin^3 x+\sin x^3$；； find y'

（2）Given that $f(x)=(x+\sqrt{1+x^2})^{10}$， find $\dfrac{f'(1)}{f(1)}$。

14. Find the tangible equation for $y = \frac{1}{(3x + x^2)^2}$ at $(1, \frac{1}{16})$.

15. Given that $f(x) = x \ln x + \frac{1}{x} e^{x^2}$, $g(x) = f'(x)$, $G(x) = g'(x)$, Find $G'(x)$。