Q**1**: $\lim_{x\to 4}\left(x^2-4x+1\right)=$			
A) 1	B) -1	C) 3	D) 5

Q**2**: $\lim_{x\to 2}\left(2x^2-4x-1\right)^3=$			
A) 9	B) 1	C) -1	D) -11

Q**3**: $\lim_{x\to -1}\sqrt{x^2-8x-2}=$			
A) does not exist	B) $\sqrt{7}$	C) $\sqrt{6}$	D) $\sqrt{5}$

Q**4**: $\lim_{x\to -1}\left(x^2+1\right)\left(x^3+2\right)=$			
A) 0	B) 6	C) 2	D) 4

Q**5**: $\lim_{x\to 3}\left(x^2-4\right)\left(2-x\right)=$			
A) 5	B) -5	C) 9	D) -11

Q**6**: $\lim_{x\to 3}\left(\frac{x+6}{x+3}\right)=$			
A) does not exist	B) 3	C) $\frac{2}{3}$	D) $\frac{3}{2}$

Q**7**: $\lim_{x\to -6}\left(\frac{3x+10}{x-6}\right)=$			
A) does not exist	B) $-\frac{2}{3}$	C) $\frac{2}{3}$	D) $\frac{4}{3}$

Q**8**: $\lim_{x\to 1}\left(\frac{x^2-1}{x+1}\right)=$			
A) does not exist	B) $-\frac{1}{2}$	C) $\frac{1}{2}$	D) 0

Q**9**: $\lim_{x\to 1}\left(\frac{x^2-1}{x-1}\right)=$			
A) 2	B) -2	C) -1	D) does not exist

Q**10**: $\lim_{x\to 4}\left(\frac{x^2-16}{x-4}\right)=$			
A) 8	B) 4	C) 2	D) 16

Q**11**: $\lim_{x\to -1}\left(\frac{x+1}{x^2-1}\right)=$			
A) $\frac{1}{2}$	B) $-\frac{1}{2}$	C) -2	D) does not exist

Q**12**: $\lim_{x\to 3}\left(\frac{x^2-6x+9}{x^2-9}\right)=$			
A) 1	B) 0	C) -1	D) does not exist

Q**13**: $\lim_{t\to 1}\left(\frac{t^2-1}{t^2+2t-3}\right)=$			
A) does not exist	B) $\frac{3}{4}$	C) $-\frac{1}{2}$	D) $\frac{1}{2}$

Q**14**: $\lim_{x\to -1}\left(\frac{x^3+1}{x+1}\right)=$			
A) 1	B) does not exist	C) 3	D) 2

Q**15**: $\lim_{x\to 2}\left(\frac{x-2}{x^3-8}\right)=$			
A) $\frac{1}{4}$	B) does not exist	C) $\frac{1}{8}$	D) $\frac{1}{12}$

Q**16**: $\lim_{x\to -3}\left(\frac{x^2+5x+6}{x+3}\right)=$			
A) -1	B) 1	C) -2	D) 2

Q**17**: $\lim_{x\to -1}\left(\frac{x^2-3x-4}{x^2+4x+3}\right)=$			
A) $-\frac{3}{2}$	B) $\frac{3}{2}$	C) $\frac{5}{2}$	D) $-\frac{5}{2}$

Q**18**: $\lim_{x\to -2}\left(\frac{x^2+2x}{x^2-4}\right)=$			
A) $-\frac{1}{2}$	B) $\frac{1}{2}$	C) $\frac{1}{4}$	D) $-\frac{1}{4}$

Q**19**: $\lim_{x\to 2}\left(\frac{x^4-16}{x^3-8}\right)=$			
A) $\frac{5}{3}$	B) $-\frac{5}{3}$	C) $-\frac{8}{3}$	D) $\frac{8}{3}$

Q**20**: $\lim_{x\to 9}\left(\frac{\sqrt{x}-3}{x-9}\right)=$			
A) $\frac{1}{6}$	B) $\frac{1}{9}$	C) $\frac{1}{3}$	D) $-\frac{1}{6}$

Q**21**: $\lim_{h\to 0}\left(\frac{\sqrt{4+h}-2}{h}\right)=$			
A) $-\frac{1}{4}$	B) $\frac{1}{6}$	C) $\frac{1}{4}$	D) $\frac{1}{2}$

Q**22**: $\lim_{x\to 0}\left(\frac{x}{\sqrt{x+1}-1}\right)=$			
A) 3	B) 0	C) 1	D) 2

Q**23**: $\lim_{x\to 0}\left(\frac{\sqrt{x+1}-1}{x}\right)=$			
A) $\frac{1}{4}$	B) 1	C) 2	D) $\frac{1}{2}$

Q**24**: If $\lim_{x\to 4} f(x)=2$ and $\lim_{x\to 4} g(x)=-3$, then $\lim_{x\to 4}\frac{g(x)}{f(x)-1}=$			
A) -3	B) 3	C) 2	D) $\frac{4}{3}$

Q**25**: If $\lim_{x\to a} f(x)=4$ and $\lim_{x\to a} g(x)=-2$, then $\lim_{x\to a}\left(f(x)+\mathrm{g}(x)\right)=$			
A) 8	B) -2	C) 2	D) 12

Q**26**: $\lim_{x\to -2}\lvert x-2\rvert=$			
A) 4	B) -4	C) 8	D) -8

Q**27**: $\lim_{x\to 0^+}\frac{\lvert x\rvert}{x}=$			
A) 0	B) -1	C) 1	D) does not exist

Q**28**: $\lim_{x\to 0^-}\frac{\lvert x\rvert}{x}=$			
A) 0	B) -1	C) 1	D) does not exist

Q**29**: $\lim_{x\to 0}\frac{\lvert x\rvert}{x}=$			
A) 0	B) -1	C) 1	D) does not exist

Q**30**: $\lim_{x\to 2^+}\frac{\lvert x-2\rvert}{x-2}=$			
A) does not exist	B) -1	C) 1	D) 2

Q**31**: $\lim_{x\to 2^-}\frac{\lvert x-2\rvert}{x-2}=$			
A) does not exist	B) -1	C) 1	D) 2

Q**32**: $\lim_{x\to 2}\frac{\lvert x-2\rvert}{x-2}=$			
A) does not exist	B) -1	C) 1	D) 2

Q**33**: If $f(x)=\begin{cases}2x+1, & x\le -2\\ 2x+6, & x>-2\end{cases}$, then $\lim_{x\to -2^+} f(x)=$			
A) 2	B) 3	C) does not exist	D) -3

Q**34**: If $f(x)=\begin{cases}2x+1, & x\le -2\\ 2x+6, & x>-2\end{cases}$, then $\lim_{x\to -2^-} f(x)=$			
A) 2	B) 3	C) does not exist	D) -3

Q**35**: If $f(x)=\begin{cases}2x+1, & x\le -2\\ 2x+6, & x>-2\end{cases}$, then $\lim_{x\to -2} f(x)=$			
A) 2	B) 3	C) does not exist	D) -3

Q**36**: If $f(x)=\begin{cases}1+x, & x>3\\ 2x-2, & x\le 3\end{cases}$, then $\lim_{x\to 3} f(x)=$			
A) 4	B) -4	C) does not exist	D) 3

Q**37**: If $f(x)=\begin{cases}x-1, & x\le -1\\ x^2+1, & -1<x\le 0\\ (x+\pi)^2, & x>0\end{cases}$, then $\lim_{x\to -1^-} f(x)=$			
A) 1	B) -2	C) 2	D) π^2

Q**38**: If $f(x)=\begin{cases}x-1, & x\le -1\\ x^2+1, & -1<x\le 0\\ (x+\pi)^2, & x>0\end{cases}$, then $\lim_{x\to -1^+} f(x)=$			
A) 1	B) -2	C) 2	D) π^2

Q**39**: If $f(x)=\begin{cases} x-1, & x\le -1 \\ x^2+1, & -1<x\le 0 \\ (x+\pi)^2, & x>0 \end{cases}$, then $\lim\limits_{x\to 0^-} f(x)=$			
A) 1	B) -2	C) 2	D) π^2

Q**40**: If $f(x)=\begin{cases} x-1, & x\le -1 \\ x^2+1, & -1<x\le 0 \\ (x+\pi)^2, & x>0 \end{cases}$, then $\lim\limits_{x\to 0^+} f(x)=$			
A) 1	B) -2	C) 2	D) π^2

Q**41**: If $\sqrt{5-2x^2}\le f(x)\le\sqrt{5-x^2}$, then $\lim\limits_{x\to 0} f(x)=$			
A) 2	B) $\sqrt{5}$	C) does not exist	D) 0

Q**42**: If $2-x^2\le g(x)\le 2\cos x$, then $\lim\limits_{x\to 0} g(x)=$			
A) 2	B) -2	C) does not exist	D) 0

Q**43**: $\lim\limits_{x\to\infty}\left(\dfrac{x}{2x-3}\right)=$			
A) $-\dfrac{1}{3}$	B) ∞	C) 0	D) $\dfrac{1}{2}$

Q**44**: $\lim\limits_{x\to\infty}\left(\dfrac{3x^3-5x^2+7}{8+2x-5x^3}\right)=$			
A) $-\dfrac{3}{5}$	B) $\dfrac{3}{5}$	C) ∞	D) 0

Q**45**: $\lim\limits_{x\to\infty}\left(\dfrac{3x^3-7x^2+1}{8x^3+6x+5}\right)=$			
A) $\dfrac{8}{3}$	B) $\dfrac{3}{8}$	C) ∞	D) 0

Q**46**: $\lim\limits_{x\to-\infty}\left(\dfrac{x^2-2}{x-x^2}\right)=$			
A) $-\infty$	B) -1	C) 0	D) 1

Q**47**: $\lim\limits_{x\to\infty}\left(\dfrac{2x-1}{\sqrt{3x^2+x+1}}\right)=$			
A) ∞	B) $-\dfrac{2}{\sqrt{3}}$	C) $\dfrac{2}{\sqrt{3}}$	D) 0

Q**48**: $\lim_{x\to-\infty}\left(\frac{2x-1}{\sqrt{3x^2+x+1}}\right)=$			
A) $-\infty$	B) $-\frac{2}{\sqrt{3}}$	C) $\frac{2}{\sqrt{3}}$	D) 0

Q**49**: $\lim_{x\to\infty}\left(\frac{x+1}{2x^2+6x+5}\right)=$			
A) $\frac{1}{2}$	B) 2	C) ∞	D) 0

Q**50**: $\lim_{x\to\infty}\left(\sqrt{x^2+3x}+x\right)=$			
A) ∞	B) 0	C) $3/2$	D) $-3/2$

Q**51**: $\lim_{x\to\infty}\left(\sqrt{x^2+3x}-x\right)=$			
A) ∞	B) 0	C) $3/2$	D) $-3/2$

Q**52**: $\lim_{x\to3^+}\left(\frac{1}{3-x}\right)=$			
A) does not exist	B) $-\infty$	C) ∞	D) 0

Q**53**: $\lim_{x\to3^-}\left(\frac{1}{3-x}\right)=$			
A) does not exist	B) $-\infty$	C) ∞	D) 0

Q**54**: $\lim_{x\to3}\left(\frac{1}{3-x}\right)=$			
A) does not exist	B) $-\infty$	C) ∞	D) 0

Q**55**: $\lim_{x\to2^+}\left(\frac{x}{x-2}\right)=$			
A) $-\infty$	B) does not exist	C) 0	D) ∞

Q**56**: $\lim_{x\to2^-}\left(\frac{x}{x-2}\right)=$			
A) $-\infty$	B) does not exist	C) 0	D) ∞

Q**57**: $\lim_{x\to2}\left(\frac{x}{x-2}\right)=$			
A) $-\infty$	B) does not exist	C) 0	D) ∞

Q**58**: $\lim_{x\to3^+}\left(\frac{x-4}{x^2-9}\right)=$			
A) 0	B) ∞	C) $-\infty$	D) does not exist

Q**59**: $\lim_{x\to 3^-}\left(\frac{x-4}{x^2-9}\right)=$			
A) 0	B) ∞	C) $-\infty$	D) does not exist

Q**60**: $\lim_{x\to 3}\left(\frac{x-4}{x^2-9}\right)=$			
A) 0	B) ∞	C) $-\infty$	D) does not exist

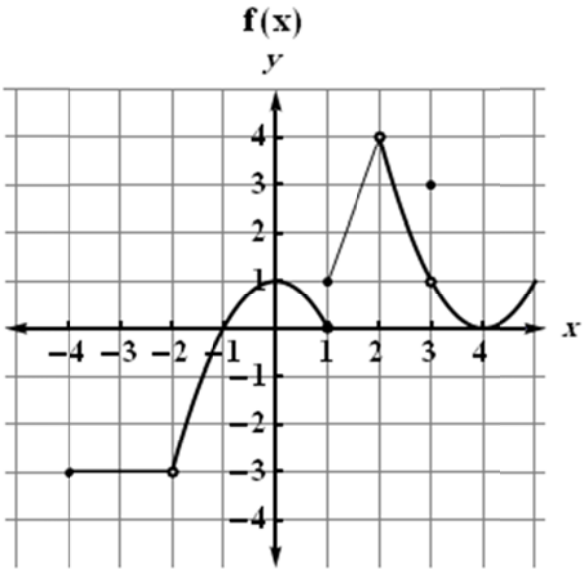
Q**61**: $\lim_{x\to 2}\left(\frac{x-3}{x^2-4x+4}\right)=$			
A) 0	B) ∞	C) $-\infty$	D) does not exist

Q**62**: $\lim_{x\to 3^+}\lfloor x \rfloor=$			
A) 3	B) does not exist	C) 2	D) 1

Q**63**: $\lim_{x\to 3^-}\lfloor x \rfloor=$			
A) 3	B) does not exist	C) 2	D) 1

Q**64**: $\lim_{x\to 3}\lfloor x \rfloor=$			
A) 3	B) does not exist	C) 2	D) 1

Q**65**: Consider the function $f(x)$ in the next figure to find $\lim_{x\to -2} f(x)$



A) -3	B) 1	C) 4	D) does not exist

Q**66**: The function $f(x)=\begin{cases}\frac{x^2-1}{x-1}, & x\neq 1\\ 4, & x=1\end{cases}$ is

A) continuous at $x=1$	B) discontinuous at $x=1$

Q**67**: The function $f(x)=\begin{cases}\dfrac{x+1}{x^2-1}, & x\neq -1\\ -\dfrac{1}{2}, & x=-1\end{cases}$ is	
A) continuous at $x=-1$	B) discontinuous at $x=-1$

Q**68**: The function $f(x)=\begin{cases}2x+3, & x>2\\ 5+x, & x\leq 2\end{cases}$ is	
A) left continuous at $x=2$ only	C) right continuous at $x=2$ only
B) continuous at $x=2$	D) neither left continuous nor right continuous at $x=2$

Q**69**: The function $f(x)=\begin{cases}3x+2, & x\leq 1\\ 6-x, & x>1\end{cases}$ is	
A) left continuous at $x=1$ only	C) right continuous at $x=1$ only
B) continuous at $x=1$	D) neither left continuous nor right continuous at $x=1$

Q**70**: The function $f(x)=\lfloor x \rfloor$ is	
A) left continuous at $x=1$ only	C) right continuous at $x=1$ only
B) continuous at $x=1$	D) neither left continuous nor right continuous at $x=1$

Q**71**: The function $f(x)=\begin{cases}\dfrac{\lvert x-3\rvert}{x-3}, & x\neq 3\\ 3, & x=3\end{cases}$ is	
A) left continuous at $x=3$ only	C) right continuous at $x=3$ only
B) continuous at $x=3$	D) neither left continuous nor right continuous at $x=3$

Q**72**: The function $f(x)=\dfrac{x-1}{x^2-16}$ is continuous on			
A) $\mathbb{R}-\{-4\}$	B) $\mathbb{R}-\{-4,4\}$	C) $\mathbb{R}-\{4\}$	D) $\mathbb{R}$

Q**73**: The function $f(x)=\dfrac{x+5}{x^2+4}$ is continuous on			
A) $\mathbb{R}-\{-2,2\}$	B) $\mathbb{R}-\{-2\}$	C) $\mathbb{R}-\{2\}$	D) $\mathbb{R}$

Q**74**: The function $f(x)=\dfrac{x^2+7}{x^2+x-12}$ is continuous on			
A) $\mathbb{R}-\{3,4\}$	B) $\mathbb{R}-\{-4,3\}$	C) $\mathbb{R}-\{-3,4\}$	D) $\mathbb{R}-\{-4,-3\}$

Q**75**: The function $f(x)=\sqrt{x^2-9}$ is continuous on			
A) $(-3,3)$	B) $(-\infty,-3)\cup(3,\infty)$	C) $(-\infty,-3]\cup[3,\infty)$	D) $[-3,3]$

Q**76**: The function $f(x)=\dfrac{\sin x}{x^2-3x+2}$ is continuous on			
A) $\mathbb{R}-\{1,2\}$	B) $\mathbb{R}-\{-1,2\}$	C) $\mathbb{R}-\{-2,1\}$	D) $\mathbb{R}-\{-2,-1\}$

Q**77**: The function $f(x)=\dfrac{x}{\sqrt{x-1}}$ is continuous on			
A) $[1,\infty)$	B) $(1,\infty)$	C) $[0,\infty)$	D) $\mathbb{R}$

Q**78**: The continuous extension of $f(x)=\dfrac{x^2-4}{x-2}$ at $x=2$ is	
A) $f(x)=\begin{cases}\dfrac{x^2-4}{x-2}, & x\neq 2\\ 2, & x=2\end{cases}$	C) $f(x)=\begin{cases}\dfrac{x^2-4}{x-2}, & x\neq 2\\ 4, & x=2\end{cases}$
B) $f(x)=\begin{cases}\dfrac{x^2-4}{x-2}, & x\neq 2\\ 1, & x=2\end{cases}$	D) $f(x)=\begin{cases}\dfrac{x^2-4}{x-2}, & x\neq 2\\ 3, & x=2\end{cases}$

Q**79**: The continuous extension of $f(t)=\dfrac{1+t^3}{1-t^2}$ at $t=-1$ is	
A) $f(t)=\begin{cases}\dfrac{1+t^3}{1-t^2}, & t\neq -1\\ -\dfrac{1}{2}, & t=-1\end{cases}$	C) $f(t)=\begin{cases}\dfrac{1+t^3}{1-t^2}, & t\neq -1\\ \dfrac{1}{2}, & t=-1\end{cases}$
B) $f(t)=\begin{cases}\dfrac{1+t^3}{1-t^2}, & t\neq -1\\ -\dfrac{3}{2}, & t=-1\end{cases}$	D) $f(t)=\begin{cases}\dfrac{1+t^3}{1-t^2}, & t\neq -1\\ \dfrac{3}{2}, & t=-1\end{cases}$

Q**80**: The value of k that makes $f(x)=\begin{cases}x^2, & x\leq 2\\ k-x^2, & x>2\end{cases}$ continuous at $x=2$ is			
A) 8	B) 4	C) 2	D) 1

Q**81**: The value of m that makes $f(x)=\begin{cases}x-m, & x<3\\ 1-mx, & x\geq 3\end{cases}$ continuous at $x=3$ is			
A) 1	B) -1	C) -2	D) 2

Q**82**: The derivative of $f(x)=\sqrt{x}$ by using definition is			
A) $\lim\limits_{h\to 0}\dfrac{\sqrt{x-h}+\sqrt{x}}{h}$	B) $\lim\limits_{h\to 0}\dfrac{\sqrt{x-h}-\sqrt{x}}{h}$	C) $\lim\limits_{h\to 0}\dfrac{\sqrt{x+h}-\sqrt{x}}{h}$	D) $\lim\limits_{h\to 0}\dfrac{\sqrt{x+h}+\sqrt{x}}{h}$

Q**83**: Equation of the tangent line to the curve $y=2x^2-5$ at the point $(2,3)$ is			
A) $y=8x+13$	B) $y=8x-13$	C) $y=-8x+13$	D) $y=-8x-13$

Q**84**: Equation of the tangent line to the curve $y = x^2 + 2$ at the point $(1,3)$ is			
A) $y = 2x - 5$	B) $y = -2x + 5$	C) $y = 2x + 1$	D) $y = 2x - 1$

Q**85**: If $y = \sin(25^\circ)$, then $\frac{dy}{dx} =$			
A) $\sin(25^\circ)$	B) $\cos(25^\circ)$	C) 0	D) 25°

Q**86**: If $y = \sin^2 x + \cos^2 x$, then $\frac{dy}{dx} =$			
A) 0	B) 1	C) $\tan^2 x$	D) $\sin(2x)$

Q**87**: If $y = x^{-1/3}$, then $\frac{dy}{dx} =$			
A) $-\frac{1}{3}x^{4/3}$	B) $-\frac{1}{3}x^{-2/3}$	C) $-\frac{1}{3}x^{2/3}$	D) $-\frac{1}{3}x^{-4/3}$

Q**88**: If $f(x) = \frac{1}{x}$, then $f'\left(\frac{1}{4}\right) =$			
A) $\frac{1}{16}$	B) $-\frac{1}{16}$	C) -16	D) 16

Q**89**: If $y = t^{1/4}$, then $\left.\frac{dy}{dt}\right\|_{t=4} =$			
A) $\frac{1}{8\sqrt{2}}$	B) $8\sqrt{2}$	C) $\frac{1}{4\sqrt{2}}$	D) $4\sqrt{2}$

Q**90**: If $y = x^2 - 3x$, then $\frac{dy}{dx} =$			
A) $2x + 3$	B) $2x - 3$	C) $x - 3$	D) $x + 3$

Q**91**: If $y = x^4 + 4x^2 + 7$, then $\frac{dy}{dx} =$			
A) $x^3 + 8x$	B) $4x^3 - 8x$	C) $4x^3 + 8x$	D) $x^3 - 8x$

Q**92**: If $y = 3x^2 - 5x - 7$, then $\frac{dy}{dx} =$			
A) $3x + 5$	B) $3x - 5$	C) $6x + 5$	D) $6x - 5$

Q**93**: If $y = \frac{s^5 + s^3}{15}$, then $\frac{dy}{ds} =$			
A) $\frac{s^4 + s^2}{5}$	B) $\frac{5s^4 + 3s^2}{15}$	C) $\frac{s^4 + s^2}{3}$	D) $s^4 + s^2$

Q**94**: If $y=(x-3)(x-2)$, then $\frac{dy}{dx}=$			
A) $2x+1$	B) $2x-1$	C) $2x+5$	D) $2x-5$

Q**95**: If $y=\frac{x+3}{x-2}$, then $y'=$			
A) $-\frac{1}{(x-2)^2}$	B) $-\frac{5}{(x-2)^2}$	C) $\frac{5}{(x-2)^2}$	D) $\frac{1}{(x-2)^2}$

Q**96**: If $f(x)=(3x-2)(1-5x)$, then $f'(x)=$			
A) $-13-30x$	B) $30x+13$	C) $13-30x$	D) $30x-13$

Q**97**: If $y=\frac{x^3-x+1}{x^4}$, then $\frac{dy}{dx}=$			
A) $\frac{1}{x^2}+\frac{3}{x^4}+\frac{4}{x^5}$	B) $-\frac{1}{x^2}-\frac{3}{x^4}-\frac{4}{x^5}$	C) $-\frac{1}{x^2}+\frac{3}{x^4}-\frac{4}{x^5}$	D) $\frac{1}{x^2}-\frac{3}{x^4}+\frac{4}{x^5}$

Q**98**: If $y=\frac{1}{x^2+5x}$, then $\frac{dy}{dx}=$			
A) $\frac{2x+5}{(x^2+5x)^2}$	B) $-\frac{2x+5}{(x^2+5x)^2}$	C) $\frac{2x+3}{(x^2+5x)^2}$	D) $-\frac{2x+3}{(x^2+5x)^2}$

Q**99**: If $f(x)=\frac{1}{x^3-8}$, then $f'(x)=$			
A) $\frac{3x^2}{(x^3-8)^2}$	B) $-\frac{3x^2}{(x^2-8)^3}$	C) $\frac{3x^2}{(x^2-8)^3}$	D) $-\frac{3x^2}{(x^3-8)^2}$

Q**100**: If $f(t)=\frac{\pi}{2-\pi t}$, then $f'(t)=$			
A) $\frac{\pi^2}{(2-\pi t)^2}$	B) $-\frac{\pi^2}{(2-\pi t)^2}$	C) $\frac{\pi}{(2-\pi t)^2}$	D) $-\frac{\pi}{(2-\pi t)^2}$

Q**101**: If $f(x)=\frac{3-4x}{3+4x}$, then $f'(x)=$			
A) $-\frac{20}{(3+4x)^2}$	B) $\frac{20}{(3+4x)^2}$	C) $\frac{24}{(3+4x)^2}$	D) $-\frac{24}{(3+4x)^2}$

Q**102**: The tangent line equation to the curve $y=\frac{x+1}{x-1}$ at $x=2$ is			
A) $y=-2x-7$	B) $2y=x+4$	C) $y=-2x+7$	D) $2y=x-4$

Q**103**: The equation of the normal to the curve $y=\frac{x+1}{x-1}$ at $x=2$ is			
A) $y=-2x-7$	B) $2y=x+4$	C) $y=-2x+7$	D) $2y=x-4$

Q**104**: If $y = x^4 + 4x^2 + 7$, then $\frac{dy}{dx} =$			
A) $x^3 + 8x$	B) $4x^3 - 8x$	C) $4x^3 + 8x$	D) $x^3 - 8x$

Q**105**: $f(x) = (2x + 7)^{10}$, then $f'(x) =$			
A) $20(2x + 7)^9$	B) $10(2x + 7)^9$	C) $2(2x + 7)^9$	D) $2(2x + 7)^{10}$

Q**106**: $f(x) = \sqrt{x^2 + 4}$, then $f'(x) =$			
A) $\frac{1}{2\sqrt{x^2 + 4}}$	B) $\frac{x}{\sqrt{x^2 + 4}}$	C) $\frac{x + 4}{\sqrt{x^2 + 4}}$	D) $\frac{1}{\sqrt{x^2 + 4}}$

Q**107**: If $y = x \sin x$, then $y' =$			
A) $\cos x$	B) $x \sin x + \cos x$	C) $x \cos x + \sin x$	D) $x + \cos x$

Q**108**: If $y = x^4 + 2x^3 + x^2 + 1$, then $y''' =$			
A) $24x + 6$	B) $24x^2 + 12x$	C) $24x^2 + 6x$	D) $24x + 12$

Q**109**: If $x^2 - y^2 = 10$, then $\frac{dy}{dx} =$			
A) $-\frac{y}{x}$	B) $-\frac{x}{y}$	C) $\frac{y}{x}$	D) $\frac{x}{y}$

Q**110**: If $x^2 + y^2 = 12$, then $\frac{dy}{dx} =$			
A) $-\frac{y}{x}$	B) $-\frac{x}{y}$	C) $\frac{y}{x}$	D) $\frac{x}{y}$

Q**111**: If $xy + y^2 = x^2$, then $\frac{dy}{dx} =$			
A) $\frac{2x + y}{x + 2y}$	B) $\frac{2x - y}{x - 2y}$	C) $\frac{2x - y}{x + 2y}$	D) $\frac{2x + y}{x - 2y}$

Q**112**: If $y = \tan x - x$, then $y' =$			
A) $-\sec^2 x - 1$	B) $\sec^2 x + 1$	C) $\sec^2 x - 1$	D) $\sec^2 x$

Q**113**: If $y = \sin x^3$, then $y' =$			
A) $\cos x^3$	B) $\cos x^3 + 3x^2$	C) $3x^2 \sin x^3$	D) $3x^2 \cos x^3$

Q**114**: If $y = (x^2 + \tan x)^8$, then $y' =$	
A) $8(x^2 + \tan x)^7 (2x + \sec^2 x)$	C) $8(x^2 + \tan x)^7 (2x - \sec^2 x)$
B) $8(x^2 + \tan x)^7$	D) $(x^2 + \tan x)^7 (2x + \sec^2 x)$

Q**115**: If $y = \sin\left(\cos\left(\tan x\right)\right)$, then $y' =$	
A) $\cos\left(\cos\left(\tan x\right)\right)\sin\left(\tan x\right)\sec^2 x$	C) $\cos\left(\cos\left(\tan x\right)\right)\sec^2 x$
B) $\cos\left(\cos\left(\tan x\right)\right)$	D) $-\cos\left(\cos\left(\tan x\right)\right)\sin\left(\tan x\right)\sec^2 x$

Q**116**: If $y = \sqrt{x^3 + \sec x}$, then $y' =$			
A) $\dfrac{3x^2 + \sec x \tan x}{\sqrt{x^3 + \sec x}}$	B) $\dfrac{1}{2\sqrt{x^3 + \sec x}}$	C) $\dfrac{3x^2 + \sec x \tan x}{2\sqrt{x^3 + \sec x}}$	D) $\dfrac{3x^2 - \sec x \tan x}{2\sqrt{x^3 + \sec x}}$

Q**117**: If $y = \dfrac{1}{1+\sin x}$, then $\dfrac{dy}{dx} =$			
A) $\dfrac{-\cos x}{\left(1+\sin x\right)^2}$	B) $\dfrac{\cos x}{\left(1+\sin x\right)^2}$	C) $-\dfrac{1}{\left(1+\sin x\right)^2}$	D) $\dfrac{1+\cos x}{\left(1+\sin x\right)^2}$

Q**118**: If $y = \dfrac{\sin x}{1+\cos x}$, then $y' =$			
A) $-\dfrac{2}{1+\cos x}$	B) $\dfrac{1}{1+\cos x}$	C) $-\dfrac{1}{1+\cos x}$	D) $\dfrac{2}{1+\cos x}$

Best Wishes