# General Revision on Sections

# 1.2, 1.3, 1.4, 2.1, 2.2, 2.3

| Q1: $\lim_{x\to 4}\left(x^2-4x+1\right)=$ | | | |
|---|---|---|---|
| A) 1 | B) $-1$ | C) 3 | D) 5 |

| Q2: $\lim_{x\to 2}\left(2x^2-4x-1\right)^2=$ | | | |
|---|---|---|---|
| A) 9 | B) 1 | C) $-1$ | D) $-11$ |

| Q3: $\lim_{x\to -1}\sqrt{x^2-8x-2}=$ | | | |
|---|---|---|---|
| A) does not exist | B) $\sqrt{7}$ | C) $\sqrt{6}$ | D) $\sqrt{5}$ |

| Q4: $\lim_{x\to -1}\left(x^2+1\right)\left(x^3+2\right)=$ | | | |
|---|---|---|---|
| A) 0 | B) 6 | C) 2 | D) 4 |

| Q5: $\lim_{x\to 3}\left(x^2-4\right)\left(2-x\right)=$ | | | |
|---|---|---|---|
| A) 5 | B) $-5$ | C) 9 | D) $-11$ |

| Q6: $\lim_{x\to 3}\dfrac{x+3}{x+6}=$ | | | |
|---|---|---|---|
| A) does not exist | B) 3 | C) $\dfrac{3}{2}$ | D) $\dfrac{2}{3}$ |

| Q7: $\lim_{x\to 1}\dfrac{x^2-1}{x+1}=$ | | | |
|---|---|---|---|
| A) does not exist | B) $-\dfrac{1}{2}$ | C) $\dfrac{1}{2}$ | D) 0 |

| Q8: $\lim_{x\to -6}\dfrac{3x+10}{x-6}=$ | | | |
|---|---|---|---|
| A) does not exist | B) $-\dfrac{2}{3}$ | C) $\dfrac{2}{3}$ | D) $\dfrac{4}{3}$ |

| Q9: $\lim_{x\to 1}\dfrac{x^2-1}{x-1}=$ | | | |
|---|---|---|---|
| A) 2 | B) $-2$ | C) $-1$ | D) does not exist |

| Q10: $\lim_{x\to -1}\frac{x+1}{x^2-1}=$ | | | |
|---|---|---|---|
| A) $\frac{1}{2}$ | B) $-\frac{1}{2}$ | C) $-2$ | D) does not exist |

| Q11: $\lim_{x\to 3}\frac{x^2-6x+9}{x^2-9}=$ | | | |
|---|---|---|---|
| A) 1 | B) 0 | C) $-1$ | D) does not exist |

| Q12: $\lim_{t\to 1}\frac{t^2-1}{t^2+2t-3}=$ | | | |
|---|---|---|---|
| A) does not exist | B) $\frac{3}{4}$ | C) $-\frac{1}{2}$ | D) $\frac{1}{2}$ |

| Q13: $\lim_{x\to -1}\frac{x^3+1}{x+1}=$ | | | |
|---|---|---|---|
| A) 1 | B) does not exist | C) 3 | D) 2 |

| Q14: $\lim_{x\to 2}\frac{x-2}{x^3-8}=$ | | | |
|---|---|---|---|
| A) $\frac{1}{4}$ | B) does not exist | C) $\frac{1}{8}$ | D) $\frac{1}{12}$ |

| Q15: $\lim_{x\to -3}\frac{x^2+5x+6}{x+3}=$ | | | |
|---|---|---|---|
| A) $-1$ | B) 1 | C) $-2$ | D) 2 |

| Q16: $\lim_{x\to -1}\frac{x^2-3x-4}{x^2+4x+3}=$ | | | |
|---|---|---|---|
| A) $-\frac{3}{2}$ | B) $\frac{3}{2}$ | C) $\frac{5}{2}$ | D) $-\frac{5}{2}$ |

| Q17: $\lim_{x\to -2}\frac{x^2+2x}{x^2-4}=$ | | | |
|---|---|---|---|
| A) $-\frac{1}{2}$ | B) $\frac{1}{2}$ | C) $\frac{1}{4}$ | D) $-\frac{1}{4}$ |

| Q18: $\lim_{x\to 2}\frac{x^4-16}{x^3-8}=$ | | | |
|---|---|---|---|
| A) $\frac{5}{3}$ | B) $-\frac{5}{3}$ | C) $-\frac{8}{3}$ | D) $\frac{8}{3}$ |

| Q19: $\lim_{x\to 9}\frac{\sqrt{x}-3}{x-9}=$ | | | |
|---|---|---|---|
| A) $\frac{1}{6}$ | B) $\frac{1}{9}$ | C) $\frac{1}{3}$ | D) $-\frac{1}{6}$ |

| Q20: $\lim_{h\to 0}\frac{\sqrt{4+h}-2}{h}=$ | | | |
|---|---|---|---|
| A) $-\frac{1}{4}$ | B) $\frac{1}{6}$ | C) $\frac{1}{4}$ | D) $\frac{1}{2}$ |

| Q21: $\lim_{x\to 0}\frac{x}{\sqrt{x+1}-1}=$ | | | |
|---|---|---|---|
| A) 3 | B) 0 | C) 1 | D) 2 |

| Q22: 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) $\frac{4}{3}$ |

| Q23: If $\lim_{x\to a} f(x)=4$ and $\lim_{x\to a} g(x)=-2$, then $\lim_{x\to a}\left(f(x)+g(x)\right)=$ | | | |
|---|---|---|---|
| A) 8 | B) $-2$ | C) 2 | D) 12 |

| Q24: $\lim_{x\to -2}\lvert x-2\rvert=$ | | | |
|---|---|---|---|
| A) 4 | B) $-4$ | C) 8 | D) $-8$ |

| Q25: $\lim_{x\to 0}\frac{\lvert x\rvert}{x}=$ | | | |
|---|---|---|---|
| A) 0 | B) $-1$ | C) 1 | D) does not exist |

| Q26: 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 |

| Q27: $\lim_{x\to 0^+}\frac{\lvert x\rvert}{x}=$ | | | |
|---|---|---|---|
| A) 0 | B) $-1$ | C) 1 | D) does not exist |

| Q28: $\lim_{x\to 0^-}\frac{\lvert x\rvert}{x}=$ | | | |
|---|---|---|---|
| A) 0 | B) $-1$ | C) 1 | D) does not exist |

| Q29: $\lim_{x\to 2}\frac{\lvert x-2\rvert}{x-2}=$ | | | |
|---|---|---|---|
| A) does not exist | B) $-1$ | C) 1 | D) 2 |

| Q30: $\lim_{x\to 2^+}\frac{\lvert x-2\rvert}{x-2}=$ | | | |
|---|---|---|---|
| A) does not exist | B) $-1$ | C) 1 | D) 2 |

| Q31: $\lim_{x\to 2^-}\frac{\lvert x-2\rvert}{x-2}=$ | | | |
|---|---|---|---|
| A) does not exist | B) $-1$ | C) 1 | D) 2 |

| Q32: If $f(x)=\begin{cases}2x+3, & x\le -2\\ 2x+5 & x>-2\end{cases}$, then $\lim_{x\to -2} f(x)=$ | | | |
|---|---|---|---|
| A) 1 | B) 3 | C) does not exist | D) $-1$ |

| Q33: If $f(x)=\begin{cases}2x+3, & x\le -2\\ 2x+5 & x>-2\end{cases}$, then $\lim_{x\to -2^-} f(x)=$ | | | |
|---|---|---|---|
| A) 1 | B) 3 | C) does not exist | D) $-1$ |

| Q34: If $f(x)=\begin{cases}2x+3, & x\le -2\\ 2x+5 & x>-2\end{cases}$, then $\lim_{x\to -2^+} f(x)=$ | | | |
|---|---|---|---|
| A) 1 | B) 3 | C) does not exist | D) $-1$ |

| Q35: 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) $\pi^2$ |

| Q36: 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) $\pi^2$ |

| Q37: 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 $\lim_{x\to 0^-} f(x)=$ | | | |
|---|---|---|---|
| A) 1 | B) $-2$ | C) 2 | D) $\pi^2$ |

| Q38: 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 $\lim_{x\to 0^+} f(x)=$ | | | |
|---|---|---|---|
| A) 1 | B) $-2$ | C) 2 | D) $\pi^2$ |

| Q39: If $\sqrt{5-2x^2}\le f(x)\le\sqrt{5-x^2}$, then $\lim_{x\to 0} f(x)=$ | | | |
|---|---|---|---|
| A) 2 | B) $\sqrt{5}$ | C) does not exist | D) 0 |

| Q40: If $2-x^2\le g(x)\le 2\cos x$, then $\lim_{x\to 0} g(x)=$ | | | |
|---|---|---|---|
| A) 2 | B) $-2$ | C) does not exist | D) 0 |

| Q41: $\lim_{x\to\infty}\frac{x}{2x-3}=$ | | | |
|---|---|---|---|
| A) $-\frac{1}{3}$ | B) $\infty$ | C) 0 | D) $\frac{1}{2}$ |

| Q42: $\lim_{x\to\infty}\frac{3x^3-5x^2+7}{8+2x-5x^3}=$ | | | |
|---|---|---|---|
| A) $-\frac{3}{5}$ | B) $\frac{3}{5}$ | C) $\infty$ | D) 0 |

| Q43: $\lim_{x\to-\infty}\frac{x^2-2}{x-x^2}=$ | | | |
|---|---|---|---|
| A) $-\infty$ | B) $-1$ | C) 0 | D) 1 |

| Q44: $\lim_{x\to\infty}\frac{2x-1}{\sqrt{3x^2+x+1}}=$ | | | |
|---|---|---|---|
| A) $\infty$ | B) $-\frac{2}{\sqrt{3}}$ | C) $\frac{2}{\sqrt{3}}$ | D) 0 |

| Q45: $\lim_{x\to-\infty}\frac{2x-1}{\sqrt{3x^2+x+1}}=$ | | | |
|---|---|---|---|
| A) $-\infty$ | B) $-\frac{2}{\sqrt{3}}$ | C) $\frac{2}{\sqrt{3}}$ | D) 0 |

| Q46: $\lim_{x\to\infty}\frac{x+1}{2x^2+6x+5}=$ | | | |
|---|---|---|---|
| A) $\frac{1}{2}$ | B) 2 | C) $\infty$ | D) 0 |

| Q47: $\lim_{x\to\infty}\left(\sqrt{x^2+3x}-x\right)=$ | | | |
|---|---|---|---|
| A) $\infty$ | B) 0 | C) 3 | D) $-3$ |

| Q48: $\lim_{x\to-\infty}\left(\sqrt{x^2+3x}-x\right)=$ | | | |
|---|---|---|---|
| A) $\infty$ | B) 0 | C) 3 | D) $-3$ |

| Q49: $\lim_{x\to3}\frac{1}{3-x}=$ | | | |
|---|---|---|---|
| A) does not exist | B) $-\infty$ | C) $\infty$ | D) 0 |

| Q50: $\lim_{x\to3^+}\frac{1}{3-x}=$ | | | |
|---|---|---|---|
| A) does not exist | B) $-\infty$ | C) $\infty$ | D) 0 |

| Q51: $\lim_{x\to3^-}\frac{1}{3-x}=$ | | | |
|---|---|---|---|
| A) does not exist | B) $-\infty$ | C) $\infty$ | D) 0 |

| Q52: $\lim_{x\to2}\frac{x}{x-2}=$ | | | |
|---|---|---|---|
| A) $-\infty$ | B) does not exist | C) 0 | D) $\infty$ |

| Q53: $\lim_{x\to2^+}\frac{x}{x-2}=$ | | | |
|---|---|---|---|
| A) $-\infty$ | B) does not exist | C) 0 | D) $\infty$ |

| Q54: $\lim_{x\to2^-}\frac{x}{x-2}=$ | | | |
|---|---|---|---|
| A) $-\infty$ | B) does not exist | C) 0 | D) $\infty$ |

| Q55: $\lim_{x\to 3}\frac{x-4}{x^2-9}=$ | | | |
|---|---|---|---|
| A) 0 | B) $\infty$ | C) $-\infty$ | D) does not exist |

| Q56: $\lim_{x\to 3^-}\frac{x-4}{x^2-9}=$ | | | |
|---|---|---|---|
| A) 0 | B) $\infty$ | C) $-\infty$ | D) does not exist |

| Q57: $\lim_{x\to 3^+}\frac{x-4}{x^2-9}=$ | | | |
|---|---|---|---|
| A) 0 | B) $\infty$ | C) $-\infty$ | D) does not exist |

| Q58: $\lim_{x\to 2}\frac{x-3}{x^2-4x+4}=$ | | | |
|---|---|---|---|
| A) 0 | B) $\infty$ | C) $-\infty$ | D) does not exist |

| Q59: $\lim_{x\to 3}\lfloor x \rfloor=$ | | | |
|---|---|---|---|
| A) 3 | B) does not exist | C) 2 | D) 1 |

| Q60: $\lim_{x\to 3^+}\lfloor x \rfloor=$ | | | |
|---|---|---|---|
| A) 3 | B) does not exist | C) 2 | D) 1 |

| Q61: $\lim_{x\to 3^-}\lfloor x \rfloor=$ | | | |
|---|---|---|---|
| A) 3 | B) does not exist | C) 2 | D) 1 |

| Q62: 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 $x=1$ |

| Q63: The function $f(x)=\begin{cases}\frac{x+1}{x^2-1}, & x\neq -1\\ -\frac{1}{2}, & x=-1\end{cases}$ is | |
|---|---|
| A) continuous at $x=-1$ | B) discontinuous at $x=-1$ |

| Q64: The function $f(x)=\begin{cases}2x+3, & x>2\\ 5+x & x\le 2\end{cases}$ is | |
|---|---|
| A) left continuous at $x=2$ only<br>B) continuous at $x=2$ | C) right continuous at $x=2$ only<br>D) neither left continuous nor right continuous at $x=2$ |

| Q65: The function $f(x)=\begin{cases}x+2, & x\le 1\\ 6-x & x>1\end{cases}$ is | |
|---|---|
| A) left continuous at $x=1$ only<br>B) continuous at $x=1$ | C) right continuous at $x=1$ only<br>D) neither left continuous nor right continuous at $x=1$ |

| Q66: The function $f(x)=\begin{cases}x+2, & x<1\\ 6-x & x\ge 1\end{cases}$ is | |
|---|---|
| A) left continuous at $x=1$ only<br>B) continuous at $x=1$ | C) right continuous at $x=1$ only<br>D) neither left continuous nor right continuous at $x=1$ |

| Q67: The function $f(x)=\lfloor x \rfloor$ is | |
|---|---|
| A) left continuous at $x=1$ only<br>B) continuous at $x=1$ | C) right continuous at $x=1$ only<br>D) neither left continuous nor right continuous at $x=1$ |

| Q68: 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<br>B) continuous at $x=3$ | C) right continuous at $x=3$ only<br>D) neither left continuous nor right continuous at $x=3$ |

| Q69: 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) $\mathbb{R}$ |

| Q70: 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) $\mathbb{R}$ |

| Q71: 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) $[-3,3]$ |

| Q72: 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) $\mathbb{R}-\{-2,-1\}$ |

| Q73: The function $f(x)=\frac{x}{\sqrt{x-1}}$ is continuous on | | | |
|---|---|---|---|
| A) $[1,\infty)$ | B) $(1,\infty)$ | C) $[0,\infty)$ | D) $\mathbb{R}$ |

| Q74: The continuous extension of $f(x)=\frac{x^2-4}{x-2}$ at $x=2$ is | |
|---|---|
| A) $f(x)=\begin{cases}\frac{x^2-4}{x-2}, & x\neq 2\\ 2, & x=2\end{cases}$ | C) $f(x)=\begin{cases}\frac{x^2-4}{x-2}, & x\neq 2\\ 4, & x=2\end{cases}$ |
| B) $f(x)=\begin{cases}\frac{x^2-4}{x-2}, & x\neq 2\\ 1, & x=2\end{cases}$ | D) $f(x)=\begin{cases}\frac{x^2-4}{x-2}, & x\neq 2\\ 3, & x=2\end{cases}$ |

| Q75: The continuous extension of $f(t)=\frac{1+t^3}{1-t^2}$ at $t=-1$ is | |
|---|---|
| A) $f(t)=\begin{cases}\frac{1+t^3}{1-t^2}, & t\neq -1\\ -\frac{1}{2}, & t=-1\end{cases}$ | C) $f(t)=\begin{cases}\frac{1+t^3}{1-t^2}, & t\neq -1\\ \frac{1}{2}, & t=-1\end{cases}$ |
| B) $f(t)=\begin{cases}\frac{1+t^3}{1-t^2}, & t\neq -1\\ -\frac{3}{2}, & t=-1\end{cases}$ | D) $f(t)=\begin{cases}\frac{1+t^3}{1-t^2}, & t\neq -1\\ \frac{3}{2}, & t=-1\end{cases}$ |

| Q76: 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 |

| Q77: 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 |

| Q78: The derivative of $f(x)=\sqrt{x}$ by using definition is | | | |
|---|---|---|---|
| A) $\lim_{h\to 0}\frac{\sqrt{x-h}+\sqrt{x}}{h}$ | B) $\lim_{h\to 0}\frac{\sqrt{x-h}-\sqrt{x}}{h}$ | C) $\lim_{h\to 0}\frac{\sqrt{x+h}-\sqrt{x}}{h}$ | D) $\lim_{h\to 0}\frac{\sqrt{x+h}+\sqrt{x}}{h}$ |

| Q79: The tangent line equation to the curve $y=3x-1$ at the point $(1,2)$ is | | | |
|---|---|---|---|
| A) $y=3x+1$ | B) $y=-3x-1$ | C) $y=-3x+1$ | D) $y=3x-1$ |

| Q80: The tangent line equation 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) $y = -8x - 13$ |

| Q81: The tangent line equation 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) $y = 2x - 1$ |

| Q82: The equation of the normal to the curve $y = x^2 + 2$ at the point $(1,3)$ is | | | |
|---|---|---|---|
| A) $x - 2y = 7$ | B) $x + 2y = -7$ | C) $x + 2y = 7$ | D) $-x + 2y = 7$ |

| Q83: 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) $-\frac{1}{3}x^{-4/3}$ |

| Q84: 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 |

| Q85: 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) $4\sqrt{2}$ |

| Q86: If $y = x^2 - 3x$ , then $\frac{dy}{dx} =$ | | | |
|---|---|---|---|
| A) $2x + 3$ | B) $2x - 3$ | C) $x - 3$ | D) $x + 3$ |

| Q87: If $y = x^4 + 4x^2 + 7$, then $\frac{dy}{dx} =$ | | | |
|---|---|---|---|
| A) $x^3 + 8x$ | B) $4x^3 - 8x$ | C) $4x^3 + 8x$ | D) $x^3 - 8x$ |

| Q88: If $y = 3x^2 - 5x - 7$, then $\frac{dy}{dx} =$ | | | |
|---|---|---|---|
| A) $3x + 5$ | B) $3x - 5$ | C) $6x + 5$ | D) $6x - 5$ |

| Q89: 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) $s^4+s^2$ |

| Q90: If $u=\frac{3}{5}x^{5/3}-\frac{5}{3}x^{-3/5}$, then $\frac{du}{dx}=$ | | | |
|---|---|---|---|
| A) $\frac{9}{25}x^{2/3}+\frac{25}{9}x^{-8/5}$ | B) $\frac{9}{25}x^{2/3}-\frac{25}{9}x^{-8/5}$ | C) $x^{2/3}-x^{-8/5}$ | D) $x^{2/3}+x^{-8/5}$ |

| Q91: If $y=(x-3)(x-2)$, then $\frac{dy}{dx}=$ | | | |
|---|---|---|---|
| A) $2x+1$ | B) $2x-1$ | C) $2x+5$ | D) $2x-5$ |

| Q92: 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) $\frac{1}{(x-2)^2}$ |

| Q93: If $f(x)=(3x-2)(1-5x)$, then $f'(x)=$ | | | |
|---|---|---|---|
| A) $-13-30x$ | B) $30x+13$ | C) $13-30x$ | D) $30x-13$ |

| Q94: 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) $\frac{1}{x^2}-\frac{3}{x^4}+\frac{4}{x^5}$ |

| Q95: If $y=\frac{1}{x^2+5x}$, then $\frac{dy}{dx}=$ | | | |
|---|---|---|---|
| A) $\frac{2x+5}{\left(x^2+5x\right)^2}$ | B) $-\frac{2x+5}{\left(x^2+5x\right)^2}$ | C) $\frac{2x+3}{\left(x^2+5x\right)^2}$ | D) $-\frac{2x+3}{\left(x^2+5x\right)^2}$ |

| Q96: 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) $-\frac{3x^2}{(x^3-8)^2}$ |

| Q97: If $f(t)=\frac{\pi}{2-\pi t}$, then $f'(t)=$ | | | |
|---|---|---|---|
| A) $\frac{\pi^2}{\left(2-\pi t\right)^2}$ | B) $-\frac{\pi^2}{\left(2-\pi t\right)^2}$ | C) $\frac{\pi}{\left(2-\pi t\right)^2}$ | D) $-\frac{\pi}{\left(2-\pi t\right)^2}$ |

| Q98: 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) $-\frac{24}{(3+4x)^2}$ |

| Q99: 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) $2y=x-4$ |

| Q100: 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) $2y=x-4$ |