MATHS

BOOKS - RD SHARMA MATHS (HINGLISH)

DIFFERENTIABILITY

Solved Examples And Exercises

1. Find the values of a and b so that the function $f(x) = \{x^2 + 3x + a, bx2 \ , \quad \text{if} \quad x \leq 1 \quad \text{if} \quad x > 1$ is differentiable at each xR.

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2. Show that $f(x) = \{12x - 13, 2x^2 + 5, \quad \text{if} \quad x \leq 3 \quad \text{if} \quad x > 3$ is differentiable at $x = 3$. Also, find $f'(3)$.

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3. Show that $f(x) = x^{\frac{1}{3}}$ is not differentiable at $x = 0$.

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4. Show that $f(x) = |x - 3|$ is continuous at $x = 3$.

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5. Show that the function $f(x) = \left\{ x^m \sin\left(\frac{1}{x}\right), 0, x \neq 0, x = 0 \right.$ is differentiable at $x = 0$,if $m > 1$

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6. Discuss the continuity and differentiability of the function $f(x) = |x| + |x - 1|$ in the interval $(-1, 2)$.

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7. Show that the function f defined as follows $f(x) = \{3x - 2, 0 < x \leq 1; 2x^2 - x, 1 < x \leq 2; 5x - 4, x > 2,$ is continous at x=2 but not differentiable.

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8. Discuss the continuity and differentiability of $f(x) = \left\{(x - c)\cos\left(\frac{1}{x - c}\right), x \neq c \text{ and } 0, x = c\right.$

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9. Show that $f(x) = |x - 3|$ is not differentiable at $x = 3$.

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10. Discuss the continuity and differentiability of $f(x) = |\log||x||$.

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11. If f is defined by $f(x) = x^2 - 4x + 7$, show that $f'(5) = 2f'\left(\frac{7}{2}\right)$

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12. If f is defined by $f(x) = x^2$, find $f'(2)$.

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13. Find the derivative of the function f defined by $f(x) = mx + c$ at $x = 0$.

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14. Discuss the continuity and differentiability of $f(x) = e^{|x|}$.

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15. If for the function $\Phi(x) = \lambda x^2 + 7x - 4$, ϕ (5) = 97, find λ .

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16. Examine the continuity $f(x) =$ {(3x-2,xlt=0),

(x+1,x >0)}atx=0`

.

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17. The setoff points where the function $f(x)$ given by $f(x) = |x - 3|\cos x$ is differentiable, is R (b) $R - \{3\}$ (c) $(0, \infty)$ (d) none of these

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18. If $f(x) = \begin{cases} \frac{1-\cos x}{x \sin x}, x \neq 0 \text{ and } \frac{1}{2}, x = 0 \end{cases}$ then at $x = 0$, $f(x)$ is (a)continuous and differentiable (b)differentiable but not continuous (c)continuous but not differentiable (d)neither continuous nor differentiable

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19. If $f(x) = \begin{cases} \frac{1}{1+e^{\frac{1}{x}}}, x \neq 00, x = 0, then f(x) \end{cases}$ is continuous as well as differentiable at $x = 0$ continuous but not differentiable at $x = 0$ differentiable but not continuous at $x = 0$ none of these

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20. If $f(x) = |3 - x| + (3 + x)$, where (x) denotes the least integer greater than or equal to x,

then $f(x)$ is continuous and differentiable at $x = 3$

continuous but not differentiable at $x = 3$

differentiable but not continuous at $x = 3$

neither differentiable nor continuous at $x = 3$

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21. Let $f(x) = a + b|x| + c|x|^4$, where $a, b and c$ are real constants. Then, $f(x)$ is differentiable at $x = 0,$ if $a = 0$ (b) $b = 0$ (c) $c = 0$ (d) none of these

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22. The function $f(x) = \frac{\sin(\pi[x - \pi])}{4 + [x]^2}$, where [] denotes the greatest integer function, is continuous as well as differentiable for all $x \in R$

(b) continuous for all x but not differentiable at some x

(c) differentiable for all x but not continuous at some x

. (d) none of these

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23. Let $f(x) = \{ax^2 + 1, x > 1;$

$x + \frac{1}{2}, x \leq 1. \, then, \, f(x)$ is derivable at $x = 1,$ if

$a = 2$

(b) $a = 1$

(c) $a = 0$

(d) $a = \frac{1}{2}$

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24. Show that the function defined by $g \ (x) = x \ [x]$ is discontinuous at all integral points. Here [x] denotes the greatest integer less than or equal to x.

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25. Find all points of discontinuity of f, where f is defined by

$f(x) = \{2x + 3, \quad \text{if} \quad x \leq 2$

$2x - 3, \quad \text{if} \quad x > 2$

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26. If $f(x) = \{x^2 + 3x + a, x \leq 1bx + 2, f \text{ or } x > 1$ is everywhere differentiable, find the values of $aandb$.

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27. Let $f(x) = |x|$ and $g(x) = |x^3|$, then

(a) $f(x)andg(x)$ both are continuous at $x = 0$

(b) $f(x)andg(x)$ both are differentiable at $x = 0$

(c) $f(x)$ is differentiable but $g(x)$ is not differentiable at $x = 0$

(d) $f(x)$ and $g(x)$ both are not differentiable at $x = 0$

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28. Is $|\sin x|$ differentiable? What about $\cos|x|$?

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29. Find the values of $aandb$ so that the function $f(x) = \{x^2 + 3x + a, \quad \text{if} \quad x \leq 1bx + 2, \quad \text{if} \quad x > 1$ is differentiable at each $x \in R$.

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30. The function $f(x) = e^{-|x|}$ is continuous everywhere but not differentiable at $x = 0$ continuous and differentiable everywhere not continuous at $x = 0$ none of these

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31. Discuss the continuity and differentiability of $f(x) = \{1 - x, x < 1(1 - x)(2 - x), 1 \leq x \leq 23 - x, x > 2$

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32. Show that the function $f(x) = \{|2x - 3|[x]x \leq 0$ and $\sin\left(\frac{\pi x}{2}\right)$, $x > 0$ is continuous but not differentiable at $x = 0$

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33. The set of points where the function $f(x) = x|x|$ is differentiable is $(- \infty, \infty)$ (b) $(- \infty, 0) \cup (0, \infty)$ $(0, \infty)$ (d) $[0, \infty)$

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34. The function $f(x) = \sin^{-1}(\cos x)$ is (a) . discontinuous at $x = 0$ (b). continuous at $x = 0$ (c) . differentiable at $x = 0$ (d) . non of these

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35. If $f(x) = |\ln|x|\ |\ |$, then (a)$f(x)$ is continuous and differentiable for all x in its domain (b)f(x) is continuous for all for all x in its domain but not differentiable at $x = \pm 1$ (c)$f(x)$ is neither continuous nor differentiable at $x = \pm 1$ (d)none of these

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36. Let $f(x) = \begin{cases} \frac{1}{|x|} f \text{ or } |x| \geq 1 ax^2 + bf \text{ or } |x| < 1 \Leftrightarrow (x) \end{cases}$ is continuous and differentiable at any point, then $a = \frac{1}{2}, b = -\frac{3}{2}$ (b) $a = -\frac{1}{2}, b = \frac{3}{2}$ $a = 1, b = -1$ (d) none of these

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37. If $f(x) = \sqrt{1 - \left(\sqrt{1} - x^2\right)}$, then $f(x)$ is (a)continuous on [-1, 1] and differentiable on (-1, 1) (b) continuous on [-1,1] and differentiable on

$(-1, 0) \cup (0, 1)$ (C) continuous and differentiable on [-1, 1](d) none of these

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38. If $f(x) = a|\sin x| + be^{|x|} + c|x|^3$ and if $f(x)$ is differentiable at $x = 0$ then

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39. If $f(x) = x^2 + \frac{x^2}{1+x^2} + \frac{x^2}{(1+x^2)^2} + + \frac{x^2}{(1+x^2)^n} +$, then at $x = 0$, $f(x)$ has no limit (b) is discontinuous is continuous but not differentiable (d) is differentiable

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40. If $f(x) = |(\log)_2 x|$, then $f(1^+) = 1$ (b) $f(1^-) = -1$ $f(1) = 1$ (c) $f'(1) = -1$

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41. If $f(x) = \begin{cases} \dfrac{|x+2|}{\tan^{-1}(x+2)}, & x \neq -2 \text{ and } 2, x = -2 \end{cases}$ then $f(x)$ is continuous/discontinuous at $x = -2$?

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42. Let $f(x) = (x + |x|)|x|\cdot$ then, for all x . f is continuous (b) f is differentiable for some x f' is continuous (d) f'' is continuous

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43. The function $f(x) = e^{-|x|}$ is continuous everywhere but not differentiable at $x = 0$ continuous and differentiable everywhere not continuous at $x = 0$ none of these

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44. The function $f(x) = |\cos x|$ is everywhere continuous and differentiable everywhere continuous but not differentiable at $(2n+1)\frac{\pi}{2}, n \in Z$. neither continuous not differentiable at $(2x+1)\frac{\pi}{2}, n \in Z$

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45. Discuss the continuity of the function $f(x) = \{2x - 1 \text{ if } x < 2$

$\frac{3x}{2}$ if $x \geq 2$

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46. Show that the function $f(x) = \left\{x^2 \sin\left(\frac{1}{x}\right), \text{ if } x \neq 00, \text{ if } x = 0\right.$ is differentiable at $x = 0$ and $f'(0) = 0$

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47. Show that $f(x) = |x|$ is not differentiable at $x = 0$.

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48. Discuss the differentiability of $f(x) = \left\{xe - \left(\frac{1}{|x|} + \frac{1}{x}\right), x \neq 0x, x = 0atx = 0\right.$

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49. For what choice of a and b is the function $f(x) = \left\{x^2, x \leq c \text{ and } ax + b, x > c\right.$ is differentiable at $x = c$

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50. Discuss the differentiability of $f(x) = x|x|$ at $x = 0$

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51. Show that the function f(x)={ $x^2 \sin\left(\frac{1}{x}\right), when x \neq 0$ and $0 when x = 0$ } is differentiable at x=0.

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52. If $f(2) = 2$ and $f'(2) = 1$, then find $\left(\lim\right)_{x \to 2} \frac{x f(2) - 2f(x)}{x - 2}$

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53. A function $f: R \to R$ satisfies the equation $f(x + y) = f(x) f(y)$ for all $x, y \in R. f(x) \neq 0$ Suppose that the function is differentiable at $x = 0$ and $f'(0) = 2$. Prove that $f'(x) = 2f(x)$.

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54. Show that $f(x) = |x|$ is not differentiable at $x = 0$.

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55. Show that the function $f(x) = \{x - 1 \ , \quad \text{if} \quad x < 22x - 3 \ , \quad \text{if} \quad x \geq 2$ is not differentiable at $x = 2$.

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56. Show that the function $f(x) = \begin{cases} x^2 \sin\left(\frac{1}{x}\right) & \text{if} \quad x \neq 0 \\ 0 & \text{if} \quad x = 0 \end{cases}$ is differentiable at x=0

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57. Show that $f(x) = x^2$ is differentiable at $x = 1$ and find $f'(1)$.

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58. Show that the function $f(x) = |x + 1| + |x - 1|$ for all $x \in R$, is not differentiable at $x = -1$ and $x = 1$.

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59. Discuss the differentiability of $f(x) = x|x|$ at $x = 0$.

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60. Show that the function $f(x) = \begin{cases} x\dfrac{\sin 1}{x} & , \quad when\ x \neq 00 \quad when\ x = 0 \end{cases}$ is continuous but not differentiable at $x = 0$.

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61. Discuss the differentiability of $f(x) = \left\{xe - \left(\dfrac{1}{|x|} + \dfrac{1}{x}\right), x \neq 0x, x = 0atx = 0\right.$

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62. If $f(x)$ is differentiable at $x = a$, find $\left(\lim\right)_{x \to a} \dfrac{x^2 f(a) - a^2 f(x)}{x - a}$.

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63. For what choice of a and b is the function $f(x) = \{x^2 \quad , \quad x \leq cax + b \quad , \quad x > c$ is differentiable at $x = c$.

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64. If $f(2) = 4$ and $f'(2) = 1$, then find $\left(\lim\right)_{x \to 2} \dfrac{x\, f(2) - 2f\,(x)}{x - 2}$.

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65. A function $f: R \to R$ satisfies that equation $f(x + y) = f(x) f(y)$ for all $x,\ y \in R$, $f(x) \neq 0$. Suppose that the function $f(x)$ is differentiable at $x = 0$ and $f'(0) = 2$. Prove that $f'(x) = 2\, f(x)$.

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66. Show that $f(x) = |x - 3|$ is continuous but not differentiable at $x = 3$.

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67. Show that $f(x) = x^{1/3}$ is not differentiable at $x = 0$.

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68. Show that $f(x) = \{12x - 13, \quad \text{if} \quad x \leq 32x^2 + 5, \quad \text{if} \quad x > 3$ is differentiable at $x = 3$. Also, find $f'(3)$.

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69. Show that the function f defined as follows `f(x)={3x-2,\ \ \ \ 02 $iscont \in uousat$x=2`, but not differentiable thereat.

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70. Discuss the continuity and differentiability of the function $f(x) = |x| + |x - 1|$ in the interval (-1, 2).

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71. Find whether the following function is differentiable at x = 1 and x = 2 or not : $f(x) = \{x, x < 12 - x, 1 \leq x \leq 2 - 2 + 3x - x^2, x > 2$

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72. Show that the function $f(x) = \left\{x^m \sin\left(\frac{1}{x}\right), 0, \quad x \neq 0, \quad x = 0\right.$ is differentiable at $x = 0$, if $m > 1$

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73. Show that the function $f(x) = \begin{cases} x^m \sin\left(\frac{1}{x}\right), & x \neq 00, \\ & x = 0 \end{cases}$ is continuous but not differentiable at $x = 0$, if `0

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74. Show that the function $f(x) = \begin{cases} x^m \sin\left(\frac{1}{x}\right), & x \neq 00, \\ & x = 0 \end{cases}$ is neither continuous nor differentiable, if $m \leq 0$

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75. Find the values of a and b so that the function $f(x) = \begin{cases} x^2 + 3x + a, & \text{if } x \leq 1 \\ bx + 2, & \text{if } x > 1 \end{cases}$ is differentiable at each $x \in R$.

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76. Show that the function $f(x) = \begin{cases} |2x-3|\,[x], & x \geq 1 \\ \sin\left(\frac{\pi x}{2}\right), & x < 1 \end{cases}$ is continuous but not differentiable at $x = 1$.

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77. If $f(x) = \begin{cases} ax^2 - b, & \text{if } |x| < 1 \\ \frac{1}{|x|}, & \text{if } |x| \geq 1 \end{cases}$ is differentiable at $x = 1$, find $a,\ b$.

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78. Find the values of a and b, if the function $f(x)$ defined by $f(x) = \begin{cases} x^2 + 3x + a, & x \leq 1 \\ bx + 2, & x > 1 \end{cases}$ is differentiable at $x = 1$.

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79. If $f(x) = x^2 + 2x + 7$, find $f'(3)$.

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80. Find $f'(2)$ and $f'(5)$ when $f(x) = x^2 + 7x + 4$.

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81. For the function f given by $f(x) = x^2 - 6x + 8$, prove that $f'(5) - 3f'(2) = f'(8)$.

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82. Discuss the continuity and differentiability of $f(x) = \{1 - x, \quad x < 1 (1 - x)(2 - x), \quad 1 \leq x \leq 2 3 - x,$

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83. Discuss the differentiability of $f(x) = |x - 1| + |x - 2|$

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84. If $f(x) = \{x^2 + 3x + a, \quad f \text{ or } \quad x \leq 1bx + 2, \qquad f \text{ or } \quad x > 1$ is everywhere differentiable, find the values of a and b.

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85. Discuss the differentiability of $f(x) = |(\log)_e x| x > 0.$

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86. If f is defined by $f(x) = x^2$, find $f'(2)$.

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87. If f is defined by $f(x) = x^2 - 4x + 7$, show that $f'(5) = 2f'\left(\frac{7}{2}\right)$

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88. Show that the derivative of the function f given by $f(x) = 2x^3 - 9x^2 + 12x + 9$, at $x = 1$ and $x = 2$ are equal.

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89. If for the function $\mathrm{Phi}(x) = \lambda x^2 + 7x - 4$, $\mathrm{Phiprime}\hat{}(5) = 97$, find λ.

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90. If $f(x) = x^3 + 7x^2 + 8x - 9$, find $f'(4)$.

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91. Find the derivative of the function f defined by $f(x) = mx + c$ at $x = 0$.

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92. Examine the differentiability of the function f defined by $f(x) = \{2x + 3, \quad \text{if} \quad -3 \leq x \leq -2x + 1, \quad \text{if} \quad -2 \leq x < 0x + 2,$

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93. Write an example of a function which is everywhere continuous but fails to be differentiable exactly at five points.

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94. Discuss the continuity and differentiability of $f(x) = |\log|x||$.

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95. Discuss the continuity and differentiability of $f(x) = e^{|x|}$.

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96. Discuss the continuity and differentiability of

$$f(x) = \begin{cases} (x-c)\cos\left(\frac{1}{x-c}\right), & x \neq c0, \\ & x = c \end{cases}$$

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97. Is $|\sin x|$ differentiable? What about $\cos|x|$?

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98. Define differentiability of a function at a point.

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99. Is every differentiable function continuous?

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100. Is every continuous function differentiable?

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101. Give an example of a function which is continuous but not differentiable at a point.

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102. If $f(x)$ is differentiable at $x = c$, then write the value of $(\lim)_{x \to c} f(x)$.

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103. If $f(x) = |x - 2|$ write whether $f'(2)$ exists or not.

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104. Write the points where $f(x) = |(\log)_e x|$ is not differentiable.

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105. Write the points of non-differentiability of $f(x) = |\log|x||$.

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106. Write the derivative of $f(x) = |x|^3$ at $x = 0$.

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107. Write the number of points where $f(x) = |x| + |x - 1|$ is continuous but not differentiable.

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108. If $(\lim)_{x \to c} \dfrac{f(x) - f(c)}{x - c}$ exists finitely, write the value of $(\lim)_{x \to c} f(x)$.

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109. Write the value of the derivative of $f(x) = |x - 1| + |x - 3|$ at $x = 2$.

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110. If $f(x) = \sqrt{x^2 + 9}$, write the value of $(\lim)_{x \to 4} \dfrac{f(x) - f(4)}{x - 4}$.

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111. Let $f(x) = |x|$ and $g(x) = \left|x^3\right|$, then $f(x)$ and $g(x)$ both are continuous at $x = 0$ (b) $f(x)$ and $g(x)$ both are differentiable at $x = 0$

(c) $f(x)$ is differentiable but $g(x)$ is not differentiable at $x = 0$ (d) $f(x)$ and $g(x)$ both are not differentiable at $x = 0$

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112. The function $f(x) = \sin^{-1}(\cos x)$ is discontinuous at $x = 0$ (b) continuous at $x = 0$ (c) differentiable at $x = 0$ (d) none of these

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113. The set of points where the function $f(x) = x|x|$ is differentiable is (a) $(-\infty, \infty)$ (b) $(-\infty, 0) \cup (0, \infty)$ (c) $(0, \infty)$ (d) $[0, \infty]$

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114. If $f(x) = \begin{cases} \dfrac{|x+2|}{\tan^{-1}(x+2)}, & x \neq -22, \\ & x = -2 \end{cases}$, then $f(x)$ is continuous at $x = -2$ (b) not continuous at $x = -2$ (c) differentiable at $x = -2$ (d) continuous but not derivative at $x = -2$

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115. Let $f(x) = |x|$. Then, for all x f is continuous (b) f is differentiable for some x (c) f ' is continuous (d) f is continuous

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116. The function $f(x) = e^{|x|}$ is (a) Continuous everywhere but not differentiable at $x = 0$ (b) Continuous and differentiable everywhere (c) Not continuous at $x = 0$ (d) None of the above

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117. The function $f(x) = |\cos x|$ is (a) everywhere continuous and differentiable (b) everywhere continuous but not differentiable at $(2n+1)\pi/2$, $n \in Z$ (c) neither continuous nor differentiable at $(2n+1)\pi/2, n \in Z$ (d) none of these

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118. If $f(x)=\sqrt{1-\sqrt{1-x^2}}$, then $f(x)$ is (a) continuous on [-1, 1] and differentiable on (-1, 1) (b) continuous on [-1, 1] and differentiable on $(-1,\ 0)\cup\varphi(0,\ 1)$ (c) continuous and differentiable on [-1, 1] (d) none of these

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119. If $f(x)=a|\sin x|+b\,e^{|x|}+c\,|x|^3$ and if $f(x)$ is differentiable at $x=0$, then $a=b=c=0$ (b) $a=0,\ b=0;\ c\in R$ (c) $b=c=0,\ a\in R$ (d) $c=0,\ a=0,\ b\in R$

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120. If $f(x)=x^2+\frac{x^2}{1+x^2}+\frac{x^2}{(1+x^2)^2}+\ +\frac{x^2}{(1+x^2)^n}+$, then at $x=0, f(x)$ has no limit (b) is discontinuous is continuous but not differentiable (d) is differentiable

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121. If $f(x) = |(\log)_e x|$, then (a) $f'(1^+) = 1$ (b) $f'(1^-) = -1$ (c) $f'(1) = 1$ (d) $f'(1) = -1$

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122. If $f(x) = |(\log)_e |x|$, then $f(x)$ is continuous and differentiable for all x in its domain] (b) $f(x)$ is continuous for all x in its domain but not differentiable at $x = \pm 1$ (c) $f(x)$ is neither continuous nor differentiable at $x = \pm 1$ (d) none of these

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123. Let $f(x) = \begin{cases} \frac{1}{|x|} & f \text{ or } |x| \geq 1 \\ ax^2 + b & f \text{ or } |x| < 1 \end{cases}$. If $f(x)$ is continuous and differentiable at any point, then (A) $a = \frac{1}{2}, b = -\frac{3}{2}$ (B) $a = -\frac{1}{2}, b = \frac{3}{2}$ (C) $a = 1, b = -1$ (D) none of these

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124. The function $f(x) = x - [x]$, where [] denotes the greatest integer function is (a) continuous everywhere (b) continuous at integer points only (c) continuous at non-integer points only (d) differentiable everywhere

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125. Let $f(x) = \{ax^2 + 1, \quad x > 1, \quad x + 1/2, \quad x \leq 1$ Then, $f(x)$ is derivable at $x = 1$, if $a = 2$ (b) $b = 1$ (c) $a = 0$ (d) $a = 1/2$

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126. Let $f(x) = |\sin x|$. Then, (a) $f(x)$ is everywhere differentiable. (b) $f(x)$ is everywhere continuous but not differentiable at $x = n\pi, \ n \in Z$ (c) $f(x)$ is everywhere continuous but not differentiable at $x = (2n + 1)\frac{\pi}{2}$, $n \in Z$. (d) none of these

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127. Let $f(x) = |\cos x|$. Then, $f(x)$ is everywhere differentiable (b) $f(x)$ is everywhere continuous but not differentiable at $x = n\pi,\ n \in Z$ (c) $f(x)$ is everywhere continuous but not differentiable at $x = (2n+1)\frac{\pi}{2},\ n \in Z$ (d) none of these

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128. The function $f(x) = 1 + |\cos x|$ is (a) continuous no where (b) continuous everywhere (c) not differentiable at $x = 0$ (d) not differentiable at $x = n\pi,\ n \in Z$

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129. The function $f(x) = |\cos x|$ is differentiable at $x = (2n+1)\,\pi/2,\ n \in Z$ (b) continuous but not differentiable at

$x = (2n+1)\,\pi/2,\ n \in Z$ (c) neither differentiable nor continuous at $x = n\pi,\ \ n \in Z$ (d) none of these

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130. The function $f(x) = (\sin(\pi[x-\pi]))$, where $[]$ denotes the greatest integer function, is continuous as well as differentiable for all $x \in R$ (b) continuous for all x but not differentiable at some x (c) differentiable for all x but not continuous at some x .(d) none of these

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131. Let $f(x) = a + b|x| + c|x|^4$, where $a,\ b,$ and c are real constants. Then, $f(x)$ is differentiable at $x = 0$, if $a = 0$ (b) $b = 0$ (c) $c = 0$ (d) none of these

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132. If $f(x) = |3 - x| + (3 + x)$, where (x) denotes the least integer greater than or equal to x , then $f(x)$ is continuous and differentiable at $x = 3$ (b) continuous but not differentiable at $x = 3$ (c) differentiable but not continuous at $x = 3$ (d) neither differentiable nor continuous at $x = 3$

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133. If $f(x) = \begin{cases} \dfrac{1}{1 + e^{1/x}}, & x \neq 00, \\ & x = 0 \end{cases}$, then $f(x)$ is continuous as well as differentiable at $x = 0$ (b) continuous but not differentiable at $x = 0$ (c) differentiable but not continuous at $x = 0$ (d) none of these

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134. If $f(x) = \left\{ \dfrac{1 - \cos x}{x \sin x}, x \neq 0 \text{ and } \dfrac{1}{2}, x = 0 \right.$ then at $x = 0$, $f(x)$ is (a)continuous and differentiable (b)differentiable but not continuous

(c)continuous but not differentiable (d)neither continuous nor differentiable

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135. The set of points where the function $f(x)$ given by $f(x) = |x-3|\cos x$ is differentiable, is R (b) $R - \{3\}$ (c) $(0, \infty)$ (d) none of these

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136. Let `f(x)={1,\ \ \ \ \ xlt=-1|x|,\ \ \ -1

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