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Practice **Set 3**

Function & **LIMIT**

Topics :

1. Function and simple examples
2. Limit of a Function
3. Standard formulae of Limit and related simple examples

DDCET final exam weightage of this topic : 3 Questions (6 Marks)

Total Practice sets
of this topic :

$5 \text{ (sets) } \times 30 \text{ (questions) } = 150 \text{ Questions}$

Total Practice tests
of this topic :

$2 \text{ (exams) } \times 30 \text{ (questions) } = 60 \text{ Questions}$

Offline / Online
during lecture :

$4 \text{ (lectures) } \times 50 \text{ (Questions) } = 200 \text{ Question}$

Total 410 Questions to
practice this topic



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Section 2 :

[1. Function and simple examples](#)

[2. Limit of a Function](#)

[3. Standard formulae of Limit and related simple examples](#)

1. If $f(x) = x^2 - 2$, then $f(-2) =$ _____.

- a. -2
- b. 2
- c. -1
- d. 1

2. If $f(x) = 2x^2 - 3x + 5$, then $f(-1) =$ _____.

- a. 10
- b. -10
- c. 4
- d. 6

3. If $f(x) = 2x^3 - 3x^2 + 5x - 3$, then $f(-1) =$ _____.

- a. 10
- b. 13
- c. -10
- d. -13

4. If $f(x) = x^3 - 1$, then $f(2) + f(3) =$ _____.

- a. 23
- b. 43
- c. 33
- d. 63

5. If $f(x) = 3^x - \log_2 x$, then $f(2) =$ _____.

- a. 2
- b. 3
- c. 4
- d. 8



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6. If $f(x) = \sin x$, then $f(x) + f(-x) =$ _____.

- a. $\sin^2 x$
- b. $2\sin x$
- c. $\cos x$
- d. 0

7. If $f(x) = e^{\sin x}$, then $f(0) =$ _____.

- a. e
- b. 1
- c. 0
- d. ∞

8. If $f(x) = \log_2 (e^{\sin x})$, then $f(0) =$ _____.

- a. e
- b. 1
- c. 0
- d. ∞

9. If $f(x) = \log (\tan x)$, then $f\left(\frac{\pi}{4}\right) =$ _____.

- a. 0
- b. 1
- c. e
- d. undefined

10. If $f(x) = \log_2 (\sin x) + \log_2 (\cos x)$, then $f\left(\frac{\pi}{4}\right) =$ _____.

- a. 0
- b. -1
- c. $-1/2$
- d. 1



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11. If $f(x) = \log\left(\frac{x-1}{x}\right)$, then $f(-x) =$ _____.

- a. $\log\left(\frac{x-1}{x}\right)$
- b. $\log\left(\frac{x+1}{x}\right)$
- c. $\log\left(\frac{x}{x-1}\right)$
- d. $\log\left(\frac{x}{x+1}\right)$

12. If $f(x) = \frac{1+x}{1-x}$, then $f(x) \cdot f(-x) =$ _____.

- a. 1
- b. -1
- c. 0
- d. ∞

13. If $f(x) = \log_4 x$, then $f(64) =$ _____. [DDCET-2024]

- a. 3
- b. -3
- c. 6
- d. $1/3$

14. If $f(x) = x^2 + 2x + 1$, what is $f(-3)$?

- a. 4
- b. 16
- c. 1
- d. 0

15. If $f(x) = 1/x$, then $f(2) + f(-2) =$ _____.

- a. 1
- b. 0
- c. -1
- d. undefined



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16. If $f(x) = \sqrt{(x+4)}$, find $f(5)$

- a. 3
- b. 9
- c. $\sqrt{9}$
- d. 1

17. If $f(x) = |3 - x|$, then $f(4) =$

- a. 1
- b. -1
- c. 0
- d. 7

18. If $f(x) = (x^2 + 1)/x$, then $f(1) =$

- a. 1
- b. 2
- c. 3
- d. 0

19. If $f(x) = 1/x^2$, then $f(-2) =$

- a. 1
- b. $1/4$
- c. -4
- d. $\frac{1}{2}$

20. If $f(x) = x^2 - 9$, then $f(-3) =$

- a. 0
- b. -6
- c. 6
- d. -9



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21. If $f(x) = \log_5(x) + \frac{x}{5}$, then $f(25) =$

- a. 2
- b. 3
- c. 5
- d. 7

22. If $f(x) = 1/(x + 1)$, then $f(-1) =$

- a. 0
- b. 1
- c. ∞
- d. -1

23. If $f(x) = \log_2(8x)$, then $f(1) =$

- a. 2
- b. 3
- c. 1
- d. 4

24. If $f(x) = (3x - 1)/(x + 1)$, then $f(0) =$

- a. -1
- b. 1
- c. 0
- d. 3

25. If $f(x) = x^2$, then $f(x) + f(-x) =$

- a. 0
- b. $2x^2$
- c. $-2x^2$
- d. x^2



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26. If $f(x) = \sqrt{9 - x^2}$, then the domain of $f(x)$ is:

- a. $x \in \mathbb{R}$
- b. $x \leq 3$
- c. $|x| \leq 3$
- d. $x \geq 3$

27. The function $f(x) = \sqrt{x - 4}$, is defined for:

- a. $x \geq 0$
- b. $x \geq 4$
- c. $x \leq 4$
- d. $x > 0$

28. The codomain of $f: \mathbb{R} \rightarrow \mathbb{R}$ given by $f(x) = x^2$ is:

- a. \mathbb{R}
- b. \mathbb{R}^+
- c. $\mathbb{R} - \{0\}$
- d. \mathbb{R}^-

29. The image of the function $f(x) = x^2$ for $x \in [-2, 2]$ is:

- a. $[0, 4]$
- b. $(-\infty, \infty)$
- c. $[2, 4]$
- d. $[1, 4]$

30. Which of the following is not in the domain of $f(x) = \log(x - 3)$?

- a. 4
- b. 5
- c. 3
- d. 10



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