



September Sprint for CAT 2025

Class 21

Algebraic Functions and Inequalities



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September Sprint Schedule

Date	Topic	Date	Topic	Date	Topic
01-Sep	Number System - 1	11-Sep	Games and Tournament	21-Sep	Algebra - 3
02-Sep	Arrangement	12-Sep	Odd One Out	22-Sep	Logical DI
03-Sep	Number System - 2	13-Sep	Chart Based DI - 3	23-Sep	Geometry - 1
04-Sep	Para Completion	14-Sep	Arithmetic - 4	24-Sep	Reading Comprehension - 3
05-Sep	Arithmetic - 1	15-Sep	Venn Diagram	25-Sep	Geometry - 2
06-Sep	Chart Based DI - 1	16-Sep	Reading Comprehension - 2	26-Sep	Quantitative Reasoning
07-Sep	Arithmetic - 2	17-Sep	Algebra - 1	27-Sep	Geometry - 3
08-Sep	Reading Comprehension - 1	18-Sep	Routes and Network	28-Sep	Parajumbles
09-Sep	Chart Based DI - 2	19-Sep	Algebra - 2	29-Sep	Misc. LR topics
10-Sep	Arithmetic - 3	20-Sep	Para Summary	30-Sep	Modern Maths



Preparing for MBA exams for 2025-26?



- Recorded concept videos
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Price: **15000/-**

Section-wise modules are also available



Pause the video, solve the question and then look at the solution!



What is the domain of the function $h(x) = \log (\sqrt{x^2 - 5x - 24} - x - 2)$?

- A. $(-\infty, -3]$
- B. $[8, \infty)$
- C. $(-\infty, 3] \cup [8, \infty)$
- D. $[-3, 8]$



For real x , find the range of the function $y = \frac{x}{x^2 - 5x + 9}$

- A. $[-1/11, 1]$
- B. $(-1/11, 1)$
- C. $(-1, 1/11)$
- D. $[-1, 1/11]$



Find the inverse function for the given function $f(x) = \frac{4x+1}{3x-2}$

A. $\frac{2x+1}{3x-4}$

B. $\frac{4x+1}{3x-2}$

C. $\frac{4x+1}{3x-2}$

D. $\frac{4x+1}{3x-2}$



There's a cubic function $G(x) = ax^3 + bx^2 + cx + d$. If $G(0) = 1$, $G(1) = 8$, $G(2) = 17$ and $G(3) = 31$, find the value of $G(-2)$.

- A. -19
- B. -21
- C. -15
- D. -17



A function is defined as $f(x+y) = f(x)f(y)$. If $f(2) = 3$, find the value of $f(8) - f(6)$

- A. 90
- B. 72
- C. 54
- D. 36

Cauchy equations

1. $f(x+y) = f(x) + f(y) \Rightarrow f(x) = kx$
2. $f(x+y) = f(x)f(y) \Rightarrow f(x) = k^x$
3. $f(xy) = f(x) + f(y) \Rightarrow f(x) = \log_k x$
4. $f(xy) = f(x)f(y) \Rightarrow f(x) = x^k$



a, b, c and d are real numbers. If $|a-b|=2$, $|b-c|=4$, and $|c-d|=6$, what is the sum of all distinct values of $|a-d|$?

- A. 12
- B. 18
- C. 24
- D. 36



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If $[X]$ – Greatest integer less than or equal to x . Find the value of
 $[\sqrt{1}] + [\sqrt{2}] + [\sqrt{3}] + \dots + [\sqrt{60}]$



There's function $f(x,y)$ such that $f(x) + f(2x+y) + 5xy = f(3x-y) + 2x^2 + 1$, where x and y are real numbers. Find the value of $f(6)$

- A. 19
- B. -11
- C. -17
- D. Cannot be determined



Let f be a function such that $f(mn) = f(m) f(n)$ for every positive integer m and n . If $f(1)$, $f(2)$ and $f(3)$ are positive integers, $f(1) < f(2)$, and $f(48) = 1250$, then $f(54)$ equals



If $f(x + \frac{1}{x}) = x^4 + \frac{1}{x^4}$, find the value of $f(3)$.



If R is the region bounded above by the graph of the function $f(x) = x+4$ and below by the graph of the function $g(x) = 3 - \frac{x}{2}$ over the interval $[1,4]$, find the area of region R.

- A. $57/4$
- B. $63/4$
- C. $33/2$
- D. $35/2$



What is the area (in square units) of the region enclosed by $3x + y \geq 5$, $2x + y \leq 5$, $2 \leq x \leq 4$.



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CAT and OMETs Mocks by MBA Karo



Let $y^2 = \frac{(x + 5)(x - 3)}{x - 1}$ then all the real values of x , for which y has non-zero real values, are:

- A. $-5 < x < 1$
- B. $x < 3$
- C. $-5 < x < 1$ or $x > 3$
- D. $1 < x < 3$ or $x < -5$



How many integer values of x satisfy the inequality $10x^2 - 19x + 6 \leq 0$?



For how many integer values of x , $\frac{x^2(x+1)}{(x-3)^3} < 0$

- A. 2
- B. 3
- C. 4
- D. More than 4



For how many integer values of x , $||x+4| - |x-4|| < 8$?

- A. 6
- B. 7
- C. 8
- D. 9



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$(5 + 2\sqrt{6})^{(2x + 5)} + (5 - 2\sqrt{6})^{(2x + 5)} = y$ which of the following can be the value of y ?

- A. 2
- B. $\sqrt{2}$
- C. $1/2$
- D. $1/\sqrt{2}$



If x and y are positive real numbers, what is the minimum value of $(2x + 3y)\left(\frac{8}{x} + \frac{3}{y}\right)$?

- A. 25
- B. 36
- C. 49
- D. 64



Let $a > b$ be positive real numbers. What is the minimum value of $a + \frac{1}{b(a-b)}$?

- A. 4
- B. 1
- C. 2
- D. 3



If $a^3b^2 = 243$, where a and b are positive real numbers, find the minimum value of $a+4b$.

A. 15

B. $5 * 6^{1/5}$

C. $5 * 6^{2/5}$

D. $6 * 5^{1/5}$



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1. What is the solution to the inequality $\frac{3x^2 - 7x + 8}{x^2 + 1} \leq 2$

- A. $x \in [2, 6]$ B. $x \in [2, 4]$ C. $x \in [1, 4]$ D. $x \in [1, 6]$

2. Find the minimum value of $2^x + 3^x + 4^x + 5^x + 6 + 5^{-x} + 4^{-x} + 3^{-x} + 2^{-x}$

3. What is the area, in sq. units, enclosed by the lines

$$2x - y - 2 = 0$$

$$4x + 3y - 24 = 0$$

$$y + 4 = 0$$

4. Find the number of integral solutions of the equation $|x| + |y| + |z| = 7$

5. If $[x]$ represents the greatest integer less than or equal to x and $\left[\frac{x}{5}\right] = \left[\frac{x}{7}\right]$, how many positive integral values of x are possible?

Answer in Comments



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Thank You