

## Prayas JEE 2026

## Mathematics

## Basic Maths

DPP: 6

Q1 Largest integral value of  $x$  satisfying:

$$\frac{x^2-9}{(x-1)(x-6)} \leq 0$$

- (A) 5 (B) 3  
(C) 4 (D) 6

Q2 Solution of  $\frac{2x-x^2}{(3+x)(5-x)} < 0$  contains smallest negative integral value is:

- (A) -3 (B) -2  
(C) -1 (D) 0

Q3 Complete set of values of ' $x$ ':

$$\frac{(x^2-11x+24)^{101}}{(x^2-10x+24)^{100}} \leq 0$$

- (A)  $x \in [3, 8]$   
(B)  $x \in [3, 4) \cup (6, 8]$   
(C)  $x \in [3, 8] - \{4, 6\}$   
(D)  $x \in (-\infty, 3] \cup [8, \infty)$

Q4 The number of integral solution of  $\frac{x+1}{x^2+2} > \frac{1}{4}$  isQ5 Complete set of values of ' $x$ ' satisfying:

$$\frac{(x-1)(x^2-x+12)}{(3+x^2)} \leq 0$$

- (A)  $x \geq 1$   
(B)  $x \in (-\infty, -3] \cup (-\sqrt{3}, 1] \cup (\sqrt{3}, 4]$   
(C)  $x \in (-\infty, -3] \cup [1, 4]$   
(D)  $x \leq 1$

Q6 Exhaustive set of values of ' $x$ ' satisfying:

$$\left(\frac{x-x^2}{x^2+2x}\right) \geq 0$$

- (A)  $x \in (-2, 1]$   
(B)  $x \in [-2, -1]$   
(C)  $x \in (-2, 1] - \{0\}$   
(D)  $x \in (-\infty, -2] \cup [1, \infty)$

Q7 Complete set of values of ' $x$ ' satisfying:

$$\frac{(x-1)^{15} x^{28}}{(x+1)^{2021} (x+2)^{2020}} \geq 0$$

- (A)  $x \in (-\infty, -1) \cup [1, \infty)$   
(B)  $x \in (-1, 1] - \{0\}$   
(C)  $x \in (-\infty, -2] \cup (0, \infty)$   
(D)  $x \in (-\infty, -2) \cup (-2, -1) \cup [1, \infty) \cup \{0\}$

Q8 Values of  $x$  for which  $(x^2 - 3)(x + 1)$  is always negative:

- (A)  $x \in (-\infty, -\sqrt{3}) \cup (-1, \sqrt{3})$   
(B)  $x \in (-\sqrt{3}, \sqrt{3})$   
(C)  $x \in R$   
(D)  $x \in (-\sqrt{3}, -1) \cup (\sqrt{3}, \infty)$

Q9 Number of positive integral pairs  $(a, b)$  such that

$$\frac{1}{a} + \frac{2}{b} = \frac{1}{3}$$

- (A) 4 (B) 8  
(C) 6 (D) 12

Q10 If  $x = \frac{4}{(\sqrt{5}+1)(\sqrt[4]{5}+1)(\sqrt[8]{5}+1)(\sqrt[16]{5}+1)}$ . Then the value of  $(1+x)^{48}$  is-

- (A) 5 (B) 25  
(C) 125 (D) 625



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## Answer Key

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Q1 (A)

Q2 (B)

Q3 (C)

Q4 5

Q5 (D)

Q6 (C)

Q7 (D)

Q8 (A)

Q9 (C)

Q10 (C)



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