MATHEMATICS

DPP
DAILY PRACTICE PROBLEMS

DPP No. 84

Total Marks : 24

Max. Time : 24 min.

Topics : Fundamentals of Mathematics, Straight Line, Hyperbola, Ellipse

Type of Questions		M.M.,	Min.
Single choice Objective (no negative marking) Q.1,2,3,4,5	(3 marks, 3 min.)	[15,	15]
Fill in the Blanks (no negative marking) Q.6	(4 marks, 4 min.)	[4,	4]
Subjective Questions (no negative marking) Q.7	(4 marks, 5 min.)	[4,	5]

1. Number of possible ordered pairs of all positions of point P, so that area of rectangle PDOC is 30 sq. units is

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

2. Point P(–1, 4) is translated by $5\sqrt{2}$ units parallel to the line $2x + 2y + 3 = 0$ so that its ordinate increases. Let Q be its new position, then image of Q with respect to the line $2x + 2y + 3 = 0$ is

    (A) (0, – 6)   (B) (– 4, –2)   (C) $\left(-\dfrac{21}{2}, \dfrac{9}{2}\right)$ (D) (– 6, 0)

3. If the point $(1 + \cos\theta, \sin\theta)$ lies between the region corresponding to the acute angle between the lines $3y = x$ & $6y = x$ and $a < \tan\dfrac{\theta}{2} < b$, then $[a + b]$ is equal to

    (where [.] denotes the greatest integer function)

    (A) 9   (B) 1   (C) 0   (D) none of these

4. The equation $(x – 2)^2 + (y + 4)^2 = 25\ \dfrac{(x + 2y – 4)^2}{5}$ represents

    (A) parabola   (B) ellipse   (C) Hyperbola   (D) Pair of lines

5. The equation, $9x^2 + 4y^2 – 18x – 16y – 11 = 0$ represents

    (A) a parabola   (B) an ellipse

    (C) a hyperbola   (D) a pair of straight lines

6. If $(a^2 + b^2)^3 = (a^3 + b^3)^2$ and $ab \neq 0$ then the numerical value of $\dfrac{a}{b} + \dfrac{b}{a}$ is equal to _____

7. Find the solution set of the inequality $||x| – 1| < 1 – x$

Answers Key

1. (B) **2.** (C) **3.** (C) **4.** (C)

5. (B) **6.** 2/3 **7.** (– , 0)