MATHEMATICS

DPP

DAILY PRACTICE PROBLEMS

DPP No. 49

Total Marks : 19

Max. Time : 20 min.

Topics : Fundamentals of Mathematics, Straight Lines

Type of Questions		M.M., Min.
Comprehension (no negative marking) Q.1 to Q.3	(3 marks, 3 min.)	[9, 9]
Single choice Objective (no negative marking) Q.4,5	(3 marks, 3 min.)	[6, 6]
Subjective Questions (no negative marking) Q.6	(4 marks, 5 min.)	[4, 5]

COMPREHENSION (Q.No. 1 to 3)

If $a < b < c < d$, then

1. $|x - a| + |x - b| + |x - c| + |x - d| = p$ has

(i) two solutions if $p > c + d - a - b$

(ii) infinite solutions if $p = c + d - a - b$

(iii) no solution if $p < c + d - a - b$

2. $|x - a| + |x - b| + |x - c| = q$ has

(i) two solutions if $q > c - a$

(ii) one solution if $q = c - a$ and

(iii) no solution if $q < c - a$

1. Number of solutions of the equation $|x - 1| + |x - 2| + |x - 3| + |x - 4| = 7$ is

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

2. Let ℓ be the number of solutions obtained in above question, then number of solutions of the equation $|x - 2| + |x - 3| + |x - 4| = \ell$ is

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

3. Let k be the number of solution obtained in Q.No. 2, then number of solution of $|x + 1| + |x| + |x - 1| = k$ is

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

4. If the lines $2x + y - 3 = 0$, $5x + ky - 3 = 0$ and $3x - y - 2 = 0$ are concurrent, then 'k' is equal to

(A) – 2 (B) 3 (C) –3 (D) 2

5. A light ray coming along the line $3x + 4y = 5$ gets reflected from the line $ax + by = 1$ and goes along the line $5x - 12y = 10$, then

(A) $a = \frac{64}{115}$, $b = \frac{112}{5}$ (B) $a = \frac{14}{15}$, $b = \frac{-8}{115}$

(C) $a = \frac{64}{115}$, $b = \frac{-8}{115}$ (D) $a = \frac{14}{15}$, $b = \frac{112}{15}$

6. If the lines $L_1 : 2x - 3y - 6 = 0$, $L_2 : x + y - 4 = 0$ and $L_3 : x + 2 = 0$ taken pair wise in order constitute the angles A, B and C respectively of ΔABC, then find the equation whose roots are tan A, tan B and tan C

Answers Key

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

5. (C)(D) **6.** $2x^3 - 15x^2 + 28x - 15 = 0$