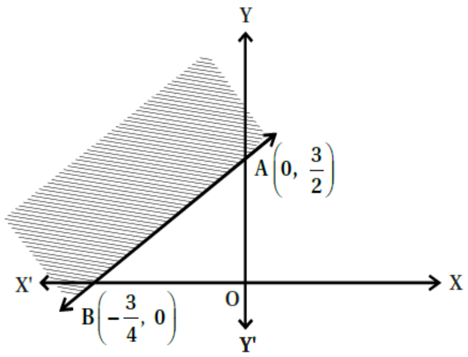
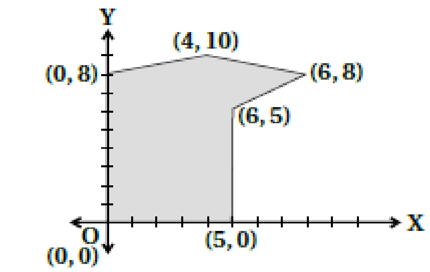
KENDRIYA VIDYALAYA SANGATHAN AHMEDABAD REGION
MATHS WORKSHEET I 2023-24
CLASS: XII
CHAPTER : LINEAR PROGRAMMING

	MCQS
Q1	Solution set of the inequality $2x+y>5$ is .... (a) The half plane containing origin (b) The open half plane above the line not containing origin (c) xy- plane excepts the points on the line $2x+y=5$ (d) None of these
Q2	The point at which the maximum value of $Z=3x+2y$ subject to the constraints $x+2y\le 2$, $x\ge 0$, $y\ge 0$ is .... (a) (0, 0) (b) (1.5, – 1.5) (c) (2, 0) (d) (0, 2)
Q3	The optimal value of the objective function is attained at the points........ (a) given by intersection of inequations with the axes only (b) given by intersection of inequations with X- axis only (c) given by corner points of the feasible region (d) None of these
Q4	The shaded region in the given figure is a graph of .... (a) $4x-2y\le 3$ (b) $4x-2y\le -3$ (c) $2x-4y\ge 3$ (d) $2x-4y\le -3$ 
Q 5	The feasible region of the inequality $x+y\le 1$ and $x-y\le 1$ lies in .... quadrants. (a) Only I and II (b) Only I and III (c) Only II and III

	(d) All the four
Note:	For Q No 6 to 9 use separate sheet to solve and attach with worksheet.
Q 6	Minimise $Z = 3x + 2y$ subject to the constraints : $x + y \geq 8$ $3x + 5y \leq 15$ $X \geq 0$, $Y \geq 0$
Q 7	The vertices of the feasible region determined by some linear constraints are (0, 2), (1, 1),(3, 3), (1, 5). Let $Z = px + qy$ where p, q> 0. Find the condition on p and q so that the maximum of Z occurs at both the points (3, 3) and (1, 5)
Q 8	Maximise $Z = 5x+3y$ subject to $3x + 5y \leq 15$, $5x + 2y \leq 10$, $x \geq 0$, $y \geq 0$
Q 9	A factory makes tennis rackets and cricket bats. A tennis racket takes 1.5 hours of machine time and 3 hours of craftman's time in its making while a cricket bat takes 3 hours of machine time and 1 hour of craftman's time. In a day, the factory has the availability of not more than 42 hours of machine time and 24 hours of craftsman's time. If the profit on a racket and on a bat is ₹20 and ₹10 respectively, find the number of tennis rackets and cricket bats that the factory must manufacture to earn the maximum profit. Make it as an *LPP* and solve graphically.
	Space for Rough Work

KENDRIYA VIDYALAYA SANGATHAN AHMEDABAD REGION
MATHS WORKSHEET II 2023-24
CLASS: XII
CHAPTER : LINEAR PROGRAMMING

	MCQS
Q1	Inequation $y - x \leq 0$ represents (a) The half plane that contains the positive X-axis (b) The half plane below the line $y = x$ and containing the line $y = x$ (c) Half plane that contains the negative X-axis (d) None of these
Q2	The solution set of the constraints $x + 2y \geq 11$, $3x + 4y \leq 30$, $2x + 5y \leq 30$, $x \geq 0$, $y \geq 0$ includes the point. (a) (2, 3) (b) (3, 2) (c) (3, 4) (d) (4, 3)
Q3	The feasible solution for a LPP is shown in Figure Let $z = 3x - 4y$ be the objective function. Minimum of Z occurs at (a) (0, 0) (b) (0, 8) (c) (5, 0) (d) (4, 10) 
Q4	The feasible solution of LPP .... (a) satisfy all the constraints (b) satisfy some of the constraints (c) always corner points of feasible solution (d) always optimal value of objective function
Q 5	Let the constraints in the given problem is represented by the following inequalities: $x+y\leq20$; $360x+240y\leq5760$ and $x,y\geq0$. Then which of the following point lie in its feasible region. (a) (0,24) (b) (8,12)

	(c) (20,2) (d) None of these
Note:	For Q No 6 to 9 use separate sheet to solve and attach with worksheet.
Q 6	The corner points of the bounded feasible region are (0, 1), (0, 7), (2, 7), (6, 3) (6, 0) (1, 0). At which point Z is minimum for the objective function Z = $3x - y$
Q 7	Find the maximum value of z = 3 x + 2y subject to constraints x + 2y ≤ 10, 3x + y ≤ 15 and x, y ≥0
Q 8	Solve graphically: Minimise Z = $-3x + 4y$ subject to $x + 2y \le 8,\ 3x + 2y \le 12,\ x \ge 0, y \ge 0$
Q 9	One kind of cake requires 200 g of flour and 25 g of fat, and another kind of cake requires 100 g of flour and 50 g of fat. Find the maximum number of cakes which can be made from 5 kg of flour and 1 kg of fat assuming that there is no shortage of the other ingredients used in making the cakes. Formulate the above as a linear programming problem and solve graphically.
	<u>Space for Rough Work</u>