

## SET 2: Applied Mathematics

### Tutorial 6

1. Solve the following systems by substitution and check the results:

(a)  $m + n = 11$   
 $m - n = 3$  [Ans.  $m = 7$  and  $n = 4$ ]

(b)  $5x + 2y = 12$   
 $3x - y = 5$  [Ans.  $x = 2$  and  $y = 1$ ]

(c)  $3x + 5y = 7$   
 $4x - 3y = -39$  [Ans.  $x = -6$  and  $y = 5$ ]

2. Solve the following systems by elimination and verify the results:

(a)  $3a + 2b = 12$   
 $2a + 5b = -3$  [Ans.  $a = 6$  and  $b = -3$ ]

(b)  $2r - 3s = -2$   
 $4r + s = 24$  [Ans.  $r = 5$  and  $s = 4$ ]

(c)  $1.2c + 2.3f = 2.5$   
 $2.4c - 3.6f = 13.2$  [Ans.  $c = 4$  and  $f = -1$ ]

3. Solve the following systems graphically and check the results:

(a)  $x - y = 2$   
 $x + y = 6$  [Ans.  $x = 4$  and  $y = 2$ ]

(b)  $3x + y = 9$   
 $5x + 4y = 22$  [Ans.  $x = 2$  and  $y = 3$ ]

(c)  $5x + 3y = 4$   
 $x - 2y = 6$  [Ans.  $x = 2$  and  $y = -2$ ]

4. Graph the solution of the following inequalities:

(a)  $4x > 10$

(b)  $2y \leq -5$

(c)  $y \geq 0$

(d)  $3x - 4y > -12$

5. Graph the solution of the following systems of inequalities:

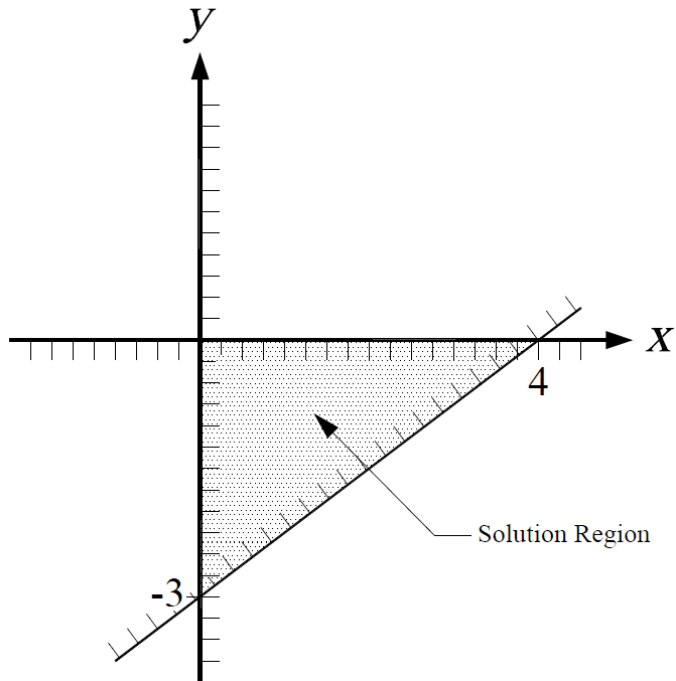
(a)  $y > -2x + 4$   
 $y < -2x - 6$

(b)  $y > -2x + 4$   
 $y > -2x - 6$

(c)  $y < -2x + 4$   
 $y > -2x - 6$

(d)  $-3x + 4y \geq -12$   
 $x \geq 0$   
 $y \leq 0$

*Ans.*



(e)  $x + y \leq 6$   
 $-3x + 5y \leq 15$   
 $x \leq 4.5$   
 $x \geq -3.5$

*Ans.*

