Chapter-3 Pair of linear equation in 2-variables

WORKSHEET-3A

1. Find the value of k for which the system of equation $3x - ky = 7$ & $6x + 10y = 3$ is inconsistent. (k= -5)
2. For what value of k will the following pair of linear equation have infinitely many solution: $kx + 3y - (k - 3) = 0$
   $12x + ky - k = 0$ (k=6)
3. For what value of a & b will the following pair of linear equation have infinitely many solution: $2x + 3y = 7$ (a=5,b=1)
   $(a - b)x + (a + b)y = 3a + b - 2$
4. For what value of k will the following pair of linear equation have infinitely many solution: $(5k - 9)x + (2k - 3)y = 1$
   $(2k + 1)x + (4k - 3)y = 5$ (k=2)
5. Solve $2x + 3y = 11$ & $2x - 4y = -24$ and hence find the value of m for which $y = mx + 3$. (x=-2,y=5,m=-1)
6. Solve the following pair of linear equation $3x + y - 12 = 0$ and $x - 3y + 6 = 0$ graphically. Also find the area enclosed with x-axis.
7. Solve using elimination or substitution method:
   i) $\frac{5}{x-1} + \frac{1}{y-2} = 2$, $\frac{6}{x-1} - \frac{3}{y-2} = 1$ (x=4, y=5)
   ii) $\frac{30}{x-y} + \frac{44}{x+y} = 10$, $\frac{40}{x-y} + \frac{55}{x+y} = 13$ (x=8 ,y=3)
   iii) $6x + 3y = 6xy$, $2x + 4y = 5xy$ (x=1, y=2)
   iv) $\frac{2}{\sqrt{x}} + \frac{3}{\sqrt{y}} = 2$, $\frac{4}{\sqrt{x}} - \frac{9}{\sqrt{y}} = -1$ (x=4, y=9)
   v) $px + qy = p - q$, $qx - py = p + q$ (x=1, y=-1)
   vi) $ax + by = c$, $bx + ay = 1 + c$ $(x = \frac{c(a-b)-b}{a^2-b^2}, y = \frac{c(a-b)+a}{a^2-b^2})$
   vii) $\frac{x}{a} - \frac{y}{b} = 0$, $ax + by = a^2 + b^2$ (x=a, y=b)
   viii) $(a - b)x + (a + b)y = a^2 - 2ab - b^2$
   $(a + b)(x + y) = a^2 + b^2$ $(x = a + b, y = -\frac{2ab}{a+b})$
   ix) $152x - 378y = -74$, $-378x + 152y = -604$ (x=2, y=1)
   x) $401x - 577y = 1027, -577x + 401y = -1907$ (x=4, y=1)
   xi) $-137x + 274y = 548$, $274x - 137y = 137$ (x=2, y=3)