COL ASS 2

1 ⇒ $k = 1$ $(1+0)$ $(i=1, j=0)$

$l = 0$ $(1+(-1))$ $(i=0, j=-1)$

2 ⇒ $z = 0$, $x = 2$ (after 3rd step)

$z = 0$, $x = 3$ (after 2nd step)

$z = 1$ (4) $(x = 4)$ (after 3rd step)

3 ⇒ $x = -12 + (1) = -13$

4 ⇒ $x = (13) - (2) = 11$

5 ⇒ $z = (2 + 2 - 2) = 2$, $u = v = w = 2$

$z = (3 - 3 + 3) = 3$, $u = v = w = 3$

$z = (4 - 4 - 4) = -4$ $u = v = w = 4$

6 ⇒ $z = (0 + 0 - 0) = 0$, $u = v = w = 0$

$z = (1 - 1 + 1) = 1$, $u = w = 1$

$z = (2 + 2 + 2) = 6$, $u = v = w = 2$

2

a, $(1001101010)_{10}$ in decimal → 1001101010

b, $(490)_{10}$ to octal

8	490	2
8	61	5
	7	

$61 = 7\times8 + 5$

$490 = 61\times8 + 2$

$490 = 7\times8^2 + 5\times8 + 2$

$(490)_{10} = (752)_8$

c, $(576)_8 = 8^2\times5 + 8\times7 + 6 = 320 + 56 + 6 = (382)_{10} = (17E)_{16}$

16	382	14
16	23	7
	1	

d, $(B9C0)_{16} = 11\times16^3 + 9\times16^2 + 12\times16 = (8+2+1)\times16^3 + (8+1)\times16^2 + (8+4)\times16$

$= 2^3\times2^{12} + 2^{13} + 2^{12} + 2^3\times2^8 + 2^8 + 2^3\times2^4 + 2^3\times2^4$

$= 2^{15} + 2^{13} + 2^{12} + 2^{11} + 2^8 + 2^7 + 2^6$

$= (1011100111000000)_2$

e, $(6537)_8 = (2^2+2)\times2^9 + (2^2+1)\times2^6 + (2+1)\times2^3 + 2^2 + 2 + 1$

$= 2^{11} + 2^{10} + 2^8 + 2^6 + 2^4 + 2^3 + 2^2 + 2 + 1$

$= (110101011111)_2$

f, $(445)_8 = (675)_8$

8	445	5
8	55	7
	6	

g, $(11001)_2 = 2^4 + 2^3 + 1 = 16 + 8 + 1 = 25$

h, $(4A0)_{16} = 4\times16^2 + 10\times16 + 13 = 1024 + 160 + 13 = (1197)_{10}$