COL100 Assignment 2

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Q1) Operator Precedence

a) line 2 : $k = 1$
line 3 : $l = 0$

b) line 3 : $z = 0$; $x = 2$ (post increment uses initial value)
line 4 : $z = 0$; $x = 3$ (evaluated as $-(x++) + (++y)$)
line 5 : $z = 0$ ($x/(x+1) = 0$ because of int. division)

c) $x = -13$ (unary operators have higher precedence)

d) $x = 11$ $((7+6) - 5/2 = 13 - 5/2 = 13 - 2 = 11)$

e) line 3 : $z = u = v = w = 2$
line 4 : $z = u = v = w = 3$
line 5 : $z = -4$; $u = v = w = 4$

f) line 3 : $z = u = v = w = 0$
line 4 : $z = u = v = w = 1$
line 5 : $z = 6$; $u = v = w = 2$

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Q2) Number System Conversions

a) $(1001101010)_2$ to Decimal

→ $D = 1\times2^9 + 1\times2^6 + 1\times2^5 + 1\times2^3 + 1\times2^1$

$\boxed{D = 618}$

b) $(490)_{10}$ to Octal

→

8	490	2
8	61	5
8	7	7
	0	

$\Rightarrow \boxed{(490)_{10} = (752)_8}$

c) $(576)_8$ to Hexadecimal

$(576)_8 = (\underline{101}\ \underline{111}\ \underline{110})_2$

$(\underline{1}\underline{0111}\ \underline{1110})_2 = (17E)_{16}$

$\Rightarrow \boxed{(576)_8 = (17E)_{16}}$

d) $(B9C0)_{16}$ to Binary

$\boxed{(B9C0)_{16} = (\underline{1011}\ \underline{1001}\ \underline{1100}\ \underline{0000})_2}$

e) $(6537)_8$ to Binary

$\boxed{(6537)_8 = (\underline{110}\ \underline{101}\ \underline{011}\ \underline{111})_2}$

f) $(445)_{10}$ to Octal

8	445	5
8	55	7
8	6	6
	0	

$\Rightarrow \boxed{(445)_{10} = (675)_8}$

g) $(11001)_2$ to Decimal

$D = 1 \times 2^4 + 1 \times 2^3 + 1 \times 2^0$

$\boxed{D = 25}$

h) $(4AD)_{16}$ to Decimal

$D = 4 \times 16^2 + 10 \times 16^1 + 13 \times 16^0$

$\boxed{D = 1197}$