

Solution 1

Shell

Create an executable file, named "a.sh", with one sequence of commands to print *the full pathname of the current working directory* on screen. Describe what you have to do for this target. (Hint: pwd)

```
echo pwd > a.sh  
chmod +x a.sh  
./a.sh
```

Number Conversion

Fill in the table below

Binary	Octal	Decimal	Hexadecimal
101 0101 0110	2526	1366	0x556
1 1111 1111	777	511	0x1FF
1 1100 0101	705	453	0x1C5
111 1101 1111	3737	2015	0x7DF
100 0000 1101	2015	1037	0x40D

Operations

Note: You need to read the Chapter 2.1.9 of the book CSAPP before doing the below homework.

- 1) Given A and B with hexadecimal expression 0x7F and 0xBA respectively. Calculate the values of the following expressions.
 - a) $A \& B$ 0x3A
 - b) $A | B$ 0xFF
 - c) $A \wedge B$ 0xC5
 - d) $\sim A | \sim B$ 0xC5
 - e) $A \&\& B$ 1
 - f) $A || B$ 1

2) Design C expressions using bitwise (& | ~ ^) and logical (&& || !) operators, which return 1 under the specific conditions described below, otherwise return 0.

a) all bits of x are 1. `!(~x)`

b) all bits of x are 0. `!x`

c) bits of x's least significant byte are 1. `!(~x & 0xFF)`

d) bits of x's least significant byte are 0. `!(x & 0xFF)`

3) Design a C expression, which generates a word (32-bit) consisting of the lower 16 bits of x and the remaining bits of y.

For example, x = 0x89ABCDEF and y = 0x76543210, it will generate 0x7654CDEF

`(x & 0xFFFF) | (y & ~0xFFFF)`