1. Information representation. We gotta have some question about number representation. Consider number system(s) that contain 10 bits, with the radix point just to the right of the MSB. For that arrangement of bits, fill in the missing elements of the following table. (Remember that Maximum is right-most on the number line; minimum is left-most on the number line.)

Value	Unsigned binary pattern	Twos-complement pattern
Maximum	11 1111 1111	01 1111 1111
Minimum	00 0000 0000	10 0000 0000 (-1)
13/32	0.01101 0000	0.01101 0000
-3/16	N/A	1.10110 0000 (-1)
1¾	1.11000 0000	N/A
-352	N/A	1010100000

2. General information question:

a) How does a programmer preserve the values of registers for "normal" processing when an interrupt is encountered? Give a two instruction sequence that will preserve registers R16-R31.

copy the registers using stmw instruction to known locations in memory and reload using lmw

```
stmw r16
lmw r16
```

(-1)

b) Give a sequence of instructions (only 2 needed) that will set up the system to expect the interrupt table to be found at the third legal location for the table. That is, what is the third legal location for the interrupt table, and how do you set it up? 0x00020000

```
lis r10, 0x0002
mtspr r10, EVPR
```

c) When a branch-to-subroutine is encountered, where does the system store the address to which the subroutine should return?

link register

d) Assume a conditional branch is located at address 0x00010000. What is the highest address that can serve as the target of the branch? That is, what is the highest address that can be reached?

```
0x00010000
+ 0000FFFF
0x0001FFFF
```

not quite (-1)

e) What is the purpose of the watchdog timer interrupt?

The watchdog timer interrupt is used to prevent infinite loop by causing an exception