NAME: ____________________________________________________________________________

1) What kind of filter is this? What is its approximate cutoff frequency?

![Filter Diagram]

2) What kind of amplifier is this? What is its gain? Do you expect it to work? (Note: IC1B is an op-amp)

![Amplifier Diagram]

3) You have a 2kHz sine wave signal with an amplitude of 1v. You pass this signal through a passive high-pass filter with a gain of 2 and a cutoff frequency of 2kHz. What is the amplitude of the output signal?
4) Write a loop (ideally in C, pseudocode is acceptable) that prints out the first 10 powers of 2. So we should see the value of $2^0$, $2^1$, $2^2$, $2^3$, etc.

5) `bitBang` is an 8-bit char. Write 4 lines of C code: one that tests the value of its 3rd bit, one that sets the 3rd bit, one that clears the 3rd bit, and one that toggles the 3rd bit.

```c
#define BIT3HI 0x04 // 0000 0100
```