

**Please show all work on this sheet.**

- (2 points) Express  $6102_{10}$  in base 15. Use the hexadecimal digits for digits 0 through 14.

- (6 points) Perform each of the following addition or subtraction operation in 20-bit two's complement using hexadecimal. **In each part, indicate whether or not overflow occurs.**

$$\begin{array}{r} 2\ d\ 7\ 7\ a \\ +\ a\ 2\ d\ d\ a \\ \hline \end{array}$$

$$\begin{array}{r} 1\ 0\ c\ a\ 2 \\ -\ f\ 3\ 9\ 0\ d \\ \hline \end{array}$$

$$\begin{array}{r} 4\ e\ 1\ c\ 2 \\ +\ 6\ 8\ 8\ 0\ 0 \\ \hline \end{array}$$

Circle one:

overflow

no overflow

Circle one:

overflow

no overflow

Circle one:

overflow

no overflow

- (2 points) Suppose that the hexadecimal 4-byte word  $1535a3c2$  is stored at memory address  $0xbfffe908$ . Give the contents of memory locations  $0xbfffe908$  through  $0xbfffe90b$  if the word is stored using

(a) the little-endian convention.

(b) the big-endian convention.

memory address	hex value
$0xbfffe908$	-----
$0xbfffe909$	-----
$0xbfffe90a$	-----
$0xbfffe90b$	-----

memory address	hex value
$0xbfffe908$	-----
$0xbfffe909$	-----
$0xbfffe90a$	-----
$0xbfffe90b$	-----

### Origami Requirement

Fold this sheet the long way (fold one edge of the rectangular sheet of paper over to its parallel edge so that the folded sheet is longer than it is wide) and write **your name** and **Homework 1** (or **HW 1**) on the outside.