#  Pointers Homework

1. If x is a variable and p is a pointer to x, which of the following expressions are aliases for x?

1. \*p Y c) \*&p N e) \*x N g) \*&x Y
2. &p N d) &\*p N f) &x N h) &\*x N

2. If x is an int variable and p and q are pointers to int, which of the following assignments are legal?

a) p = x N d) p = &q N g) p = \*q N

b) \*p = &x N e) p = \*&q Y h) \*p = q N

c) &p = q N f) p = q Y i) \*p = \*q Y

3. Write a line of code for each of the examples below. Assume that num1 and num2 are int variables and num1 is initialized to 5.

a) Define variable p to be a pointer to an int.

int \*p;

b) Assign the address of num1 to pointer p.

p = &num1;

c) Print the value of the variable pointed to by p.

printf( "The value of \*p is %d\n", \*p );

d) Assign the value of the variable pointed to by p to variable num2.

num2 = \*p;

e) Print the value of num2.

printf( "The value of num2 is %d\n", num2 );

4. Suppose that the following declarations are in effect:

int a[] = { 5, 15, 34, 54, 14, 2, 52, 72 };

int \*p = &a[1];

int \*q = &a[5];

a) What is the value of \*(p + 3)? 14

b) What is the value of \*(q - 3)? 34

c) What is the value of q – p? 4

d) Is the condition p < q true of false? True

e) Is the condition \*p < \*q true or false? False

5. Suppose that num is a one-dimensional array and p is a pointer variable. Assuming that the assignment p = num has just been performed, which of the following expressions are illegal because of mismatched types? Of the remaining expressions, which are true (have a nonzero value)?

a) p == num[0] illegal c) \*p == num[0] true

b) p == &num[0] true d) p[0] == num[0]; true