1) What will the code fragment below print (assume a 64-bit operating system is used)?

```c
struct X {
    void* data;
    float f;
    double d;
};
union Y {
    void* data;
    float f;
    double d;
};
cout << sizeof(X) << " , " << sizeof(Y) << endl;
```

**Answer:** 16, 8

2) Consider the following piece of code. What is printed in the end?

```c
int main() {
    int a[10] = {20, 15, 10, 5, 0};
    int* ap = a;
    ap += 3;
    cout << *ap << endl;
    cout << *(++ap) << endl;
    return 0;
}
```

**Answer:** 5 0

3) What is printed at the end of the following code fragment on a 32-bit computer?

```c
struct Link {
    void* data;
    Link * next;
};
Link * head;
int main() {
    cout << sizeof(Link) << endl;
    cout << sizeof(head) << endl;
    cout << sizeof(*head) << endl;
}
```

**Answer:** 8 4 8

4) Consider the Link structure given in the previous question. Write a function, named add, that takes in a number of type double and inserts it at the head of the list and updates the list accordingly.

```c
void add ( double n )
{
    Link *e = new Link ;
    e->data = (void*) new double;
    *( (double*)e->data ) = n;
    e->next = head;
    head = e;
}
```