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Output of C++ Program | Set 2

Predict the output of below C++ programs.

Question 1

```
#include<iostream>
using namespace std;

class A {
public:
    A(int ii = 0) : i(ii) {}
    void show() { cout << "i = " << i << endl;}
private:
    int i;
};

class B {
public:
    B(int xx) : x(xx) {}
    operator A() const { return A(x); }
private:
    int x;
};

void g(A a)
{ a.show(); }

int main() {
    B b(10);
    g(b);
    g(20);
    getch();
    return 0;
}
```

Output:

i = 10

i = 20

Since there is a **Conversion constructor** in class A, integer value can be assigned to objects of class A and function call g(20) works. Also, there is a conversion operator overloaded in class

Question 2

```
#include<iostream>
using namespace std;

class base {
    int arr[10];
};

class b1: public base { };

class b2: public base { };

class derived: public b1, public b2 {};

int main(void)
{
    cout<<sizeof(derived);
    getchar();
    return 0;
}
```

 80

Output: If integer takes 4 bytes, then 80.

Since *b1* and *b2* both inherit from class *base*, two copies of class *base* are there in class *derived*. This kind of inheritance without virtual causes wastage of space and ambiguities. virtual base classes are used to save space and avoid ambiguities in such cases. For example, following program prints 48. 8 extra bytes are for bookkeeping information stored by the compiler (See this for details)

```
#include<iostream>
using namespace std;

class base {
    int arr[10];
};

class b1: virtual public base { };

class b2: virtual public base { };

class derived: public b1, public b2 {};

int main(void)
{
    cout<<sizeof(derived);
    getchar();
    return 0;
}
```



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