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1. Suppose `class pictureRep` contains exactly one pure virtual function: the overloaded parentheses operator, `int operator()(int i, int j)`. Also suppose that `class hardPNG` is a `public pictureRep` that implements `operator()`. Which of the following C++ statements will certainly result in a compiler error? Make sure to read **all** options carefully.

A. [Your Answer] Exactly two of the code options will result in a compiler error.
B. `hardPNG * a = new hardPNG;`
C. `pictureRep * a = new hardPNG; hardPNG * b; a = b;`
D. None of the code options will result in a compiler error.
E. [Correct Answer] `hardPNG * a = new pictureRep;`

2. Consider the following class definitions:

```
class Test{
public:
    int fun() const;
private:
    double score;
};

class Midterm: public Test {
public:
    int games();
};
```

Where could the assignment `score = 90.0;` appear for the private variable `score`?

A. The answer to this question cannot be determined from the given code.
B. [Correct Answer] Neither `fun()` nor `games()` can make the assignment.
C. [Your Answer] `fun()` can make the assignment, but `games()` cannot.
D. `games()` can make the assignment, but `fun()` cannot.
E. Both `fun()` and `games()` can make the assignment.

3. What will be the output of the following program?

```
class Base {
    public:
        Auxilliary *a1;
        Base() { a1 = new Auxilliary(); }
        virtual ~Base() { cout << "Base "; delete a1; }
};

class Derived : public Base {
    public:
        virtual ~Derived() { cout<< "Derived "; }
};

class Auxilliary {
   public:
       ~Auxilliary() { cout << "Auxilliary "; }
};

int main() {
    Base* b = new Derived;
    delete b;
}
```

A. `"Derived Auxilliary Base "`
B. `"Base Auxilliary "`
C. `"Base Auxilliary Derived "`
D. `"Base "`
E. [Correct Answer] [Your Answer] `"Derived Base Auxilliary "`

4. What will be the output of the following program?

```
class Animal {
    public:
        void saySomething() { cout << "I don't know what to say"; }
};

class Dog : public Animal {
    public:
        virtual void saySomething() { cout << "Woof! Woof!"; }
};

int main() {
    Animal* a;
    Dog d;
    a = &d;
    a->saySomething();
}
```

A. [Correct Answer] `"I don't know what to say"`
B. `"I don't know what to say Woof! Woof!"`
C. [Your Answer] Runtime Error
D. `"Woof! Woof!"`
E. None of the above

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