CS250 Inheritance Questions

Consider

```
class Base
{
  public:
    Base (int i)
    {
      cout << "Base" << endl;
      pInt = new int;
      *pInt = i;
    }
    ~Base ()
    {
      cout << "~Base" << endl;
      delete pInt;
    }
  private:
    int *pInt;
};

class Derived : public Base
{
  public:
    Derived (float x, int i) : Base (i)
    {
      cout << "Derived" << endl;
      pFloat = new float;
      *pFloat = x;
    }
    ~Derived ()
    {
      cout << "~Derived" << endl;
      delete pFloat;
    }
  private:
    float *pFloat;
};
```

What are the results of executing each of the following:

a)

```
int main ()
{
  Base cBase;

  return EXIT_SUCCESS;
}
```

b)

```
int main ()
{
  Derived cDerived (1.0, 2.0);

  return EXIT_SUCCESS;
}
```

c)

```
int main ()
{
  Derived *pcDerived;
  Derived cDerived (1.0, 2.0);

  return EXIT_SUCCESS;
}
```

d) Can the line

```
    Derived (float x, int i) : Base (i)
```

be replaced with the line

```
    Derived (float x)
```

Why or why not?

e) The following will produce a compiler error, linker error, runtime error, no error. Explain.

```
int main ()
{
  Derived *pcDerived;
  Derived cDerived (1.0, 2.0);
  pcDerived = &cDerived;

  return EXIT_SUCCESS;
}
```