Overloading/Overriding

Consider the following inheritance hierarchies:

```plaintext
A
  void meth(A a) {...}
  void meth(D d) {...}
  void meth(E e) {...}

B
  void meth(A a) {...}
  void meth(B b) {...}
  void meth(D d) {...}
  void meth(E e) {...}

C
  void meth(A a) {...}
  void meth(C c) {...}

D

E

void meth(A a) {...}
void meth(B b) {...}
void meth(C c) {...}
void meth(D d) {...}
void meth(E e) {...}
```

What methods get called for each of the 6 method calls in the program fragment below? (Make sure to give the full signature of the method, as well as the class it’s in.)

```plaintext
B b = new B();
A a = b;
C c = new C();
E e = new E();
D d = e;
```

a) a.meth(a);
b) a.meth(b);
c) ((A) c).meth(a);
d) c.meth((A)c);
e) a.meth(d);
f) a.meth(e);
Consider the following inheritance hierarchies:

```
<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>void meth(A a) { }</td>
<td></td>
</tr>
<tr>
<td></td>
<td>void meth(B b) { }</td>
<td></td>
</tr>
<tr>
<td></td>
<td>void meth(D d) {d.foo(this); }</td>
<td></td>
</tr>
<tr>
<td></td>
<td>void meth(E e) { }</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>void meth(A a) { }</td>
<td></td>
</tr>
<tr>
<td></td>
<td>void meth(B b) { }</td>
<td></td>
</tr>
<tr>
<td></td>
<td>void meth(D d) { }</td>
<td></td>
</tr>
<tr>
<td></td>
<td>void meth(E e) {e.foo(this); }</td>
<td></td>
</tr>
</tbody>
</table>
```

(We don’t care about any of the code or methods not shown.) These classes are used to instantiate objects as follows:

B b = new B();
A a = b;
E e = new E();
D d = e;

Which of the shown methods get called in the following cases (mention all called in order, and show each method’s full signature and class):

a) a.meth(d);
b) a.meth(a);
c) d.foo(b);
d) e.foo(b);
e) a.meth(e);
f) e.foo(d);