Honor Pledge

On my honor, I have neither given nor received any unauthorized aid on this quiz.

By typing your first and last name in the space provided below you are electronically signing to indicate that:
  (1) You are the person who is taking this quiz.
  (2) You read and understood the Honor Pledge and you agree to be bound by it.

Question 1. (6 pts) Assume the following Java subtyping hierarchy: `Integer` is a subtype of `Number`, `PositiveInteger` is a subtype of `Integer`, and `NegativeInteger` is a subtype of `Integer`. `Integer` implements the respective generic Comparable<Integer> interface.

```
Number n;
Integer i;
Object o;
PositiveInteger pi;
NegativeInteger ni;

PriorityQueue<? extends Integer> pei;
PriorityQueue<? super Integer> psi;
```

Which of the following lines are legal? Select "Legal" or "Not legal" for each line of code:

```
pei = new PriorityQueue<NegativeInteger>();
```

```
pei.add(ni); // assume pei and ni are not null
```

```
pei.add(i); // assume pei and i are not null
```

```
ni = pei.poll(); // assume pei is not null
```

```
psi = pei;
```

```
psi.add(ni); // assume psi and ni are not null
```

Question 2. (2 pts) Can you think of a reason why the designers of Java chose not to implement Integer with interning and factory methods?

Question 3. (2 pts) Since `Object` contains `clone()` method, it is sufficient to guarantee that any Java object can be cloned.