One-Dimensional Ant World

```java
/**
 * Models ants living in a 1-dimensional world.<br>
 * A queen ant can make a bunch of ants and spread them around in a
 * 1-dimensional world.  An ant from a particular colony can always calculate
 * its distance from its queen.  An ant can also move its queen to a different
 * location.  Wherever the queen moves to, her ants always know the
 * correct relative distance from her.<br>
 * The above is modeled by a Queen class with an abstract Ant inner class.
 * The Ant inner objects has direct access to the location of its outer object,
 * which is a Queen object.
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 */
public class Queen {

    private int origin;  // what does it mean for origin to be static?

    /**
     * Is part of a Queen instance, just like the origin field and the makeAnt()
     * method are parts of a Queen instance.
     */
    public abstract class Ant {

        public abstract int calcDist();

        public void moveQueen(int origin) {
            Queen.this.origin = origin;
        }
    }

    public Queen(int origin) {
        this.origin = origin;
    }

    /**
     * Factory method: relegate the task of manufacturing concrete Ant objects
     * to the Queen object because the Queen object intrinsically "knows" how
     * to make its inner objects.
     * @param loc location of the Ant.
     */
    public Ant makeAnt(final int loc){

        return new Ant() {                      // Anonymously created Ant object
            public int calcDist(){              // overriding calcDist.  As long as this

                return loc - origin;            // object is alive, the value of loc
            }                                   // stays with it and does not change.
        };
    }
}
```