AP® COMPUTER SCIENCE A
2010 SCORING GUIDELINES

Question 3: Trail

Part (a) `isLevelTrailSegment` **5 points**

Intent: *Return* `true` *if maximum difference ≤ 10 (segment is level);* `false` *otherwise*

+3 Determination of information needed to test level-trail condition
- **+1/2** Creates and maintains local state for determination of maximum (or minimum);
  alternate solution: tests difference in elevations
- **+1/2** Accesses the value of any element of `this.markers`
- **+1** All and only appropriate elements of `this.markers` participate in determination of information needed to test level-trail condition; no out-of-bounds access potential
- **+1** Compares element to state in context of updating maximum (or minimum);
  alternate solution: tests difference in elevations

+1 Correctly determines information needed to test level-trail condition for the elements examined; must address two or more pairs of elements

+1 Returns `true` if determined maximum difference is ≤ 10, `false` otherwise

Part (b) `isDifficult` **4 points**

Intent: *Return* `true` *if trail is difficult (based on number of changes of given magnitude);* `false` *otherwise*

+3 Determine number of changes, greater than or equal to 30, between consecutive values in `this.markers`

- **+1/2** Creates, initializes and accumulates a count of number of changes
- **+1/2** Accesses the value of any element of `this.markers` in context of iteration
- **+1/2** Accesses the value of all elements of `this.markers`, no out-of-bounds access potential
- **+1/2** Computes difference of all and only consecutive values in `this.markers`
- **+1** Updates accumulated count if and only if absolute value of difference is >= 30

+1 Returns `true` if accumulated count is >= 3; `false` otherwise