Part 1: Line segment

Part 2: Trapezium

Part 3: Co-ordinate of 3rd Point

Links

1. <http://uva.onlinejudge.org/index.php?option=com_onlinejudge&Itemid=8&page=show_problem&problem=3835>
2. <http://mathworld.wolfram.com/Trapezoid.html>
3. <http://math.stackexchange.com/questions/187107/calculate-coordinates-of-3rd-point-vertex-of-a-scalene-triangle-if-angles-and>
4. <http://www.math-only-math.com/division-of-line-segment.html>
5. <http://paulbourke.net/geometry/circlesphere/>