

Turn Allowance Calculation

Acknowledging that aircraft do not turn on a dime and that some finite distance is traveled around a turn which is in addition to the point-to-point distance between any three points, the following table will be used to calculate the turn “allowance” that is to be added to the total point-to-point distance of any Course:

TURN IN DEGREES at 180 KTAS				
45	90	120	135	360

DISTANCE TRAVELED IN NM at 180 KTAS				
0.37	0.74	0.99	1.11	2.96

DISTANCE TRAVELED IN NM				
0.37	0.74	0.99	1.11	2.96

BANK ANGLE	G-LOAD	RADIUS IN FT	ROT °/sec
45°	1.41	2,877	6.06

Example:

- The point-to-point length of a four-turn Course is calculated in a flight-planner to be 100 NM.
- The Course is shaped as a square with four 90-degree turns.
- The four 90-degree turns are summed to total 360 degrees of turn.
- Based on the table, 360 degrees of turn adds 2.96 NM to the Course distance*. The total Course length (to be used in scoring) is 102.96 NM**.
- The standard turn allowance uses 180 knots and 45 degrees of bank as an average of the typical range of aircraft performance and pilot experience.
- **Race Directors may interpolate table distance values as needed based on total degrees (for instance, 180 degrees is not listed, but 360 is given and can be divided by 2).