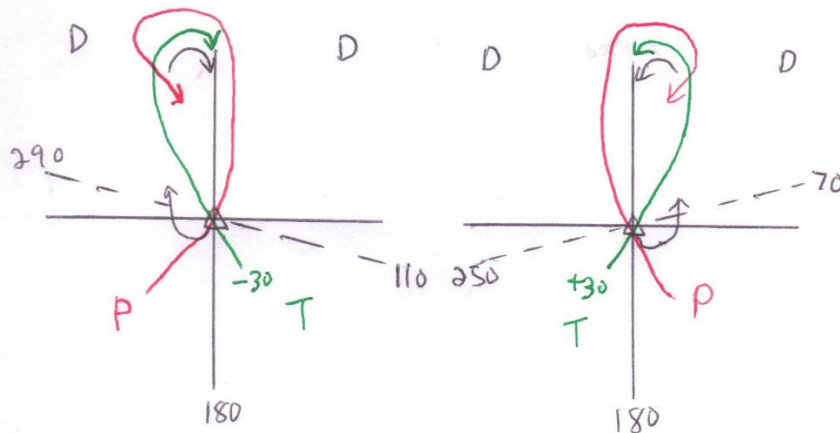


Turn, Time, Twist, GPS/NAV source, Throttle, Talk, Track



### VORs

FROM R -, FROM L +, TO R +, TO L -

200 ft per dot per NM...1 dot, 30 NM then you are 1 NM left or right

Quick Math to Determine Entry: Arc = Opposite of Airplane Heading (bottom of HI) - Hold On

Single VOR **air** check +/- 6°, Single VOR **ground** check +/- 4°, Dual VOR air check +/- 4°

VOT all signals FROM R360 (from the north), TO R180 (to the south) +/- 4°

### 1-2-3 Alternate Rule for Filing Flight Plan

For +/- 1 hour, if less than 2000 feet and/or 3 SM visibility then you need an alternate

Alternate must have VFR, 600/2 for precision, or 800/2 for non-precision

When you **arrive** at the alternate, the minimums can be approach minimums

IFR Fuel For destination, then alternate, then 45 minutes

### Standard Rate Turns

Standard rate is 1 minute 180 deg...3 degree per second

If speed increases, then bank angle must increase

### Climb Rate

$(\text{Ground Speed}/60) \times \text{ft per NM req} = \text{climb rate needed}$

Example: 120 kts is 2 NM/min  $\times$  435 ft/NM = 870 ft/min

### § 91.177 Minimum altitudes for IFR operations

Mountainous area **2,000** feet above the highest obstacle within a horizontal distance of **4** NM

Otherwise, **1,000** feet above the highest obstacle within a horizontal distance of **4** NM

### § 91.185 Comm failure

Altitude: **Minimum** on chart **Expected Assigned**

Route: **Assigned Vectored Expected Filed**

Nav equipment errors ILS GS error => use LOC mins use MDA...GPS error => exec MAP