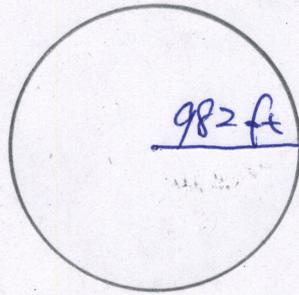


$$\text{圓周} = 2\pi R = 6170 \text{ 呎}$$

rate of climb **A-21**

rate of climb



下滑比 12 = 1 6170 = 514 ft

In general:

$$\text{rate of climb R/C} = V_{\text{true}} \sin \gamma$$

The usual units are speed in knots and R/C in feet per minute, for which:

$$\text{rate of climb R/C} = 101.268 \times V_{\text{true}} \sin \gamma \quad [101.268 = 1.6878 \times 60]$$

Turning Flight

$$R = 0.08854 \left(\frac{80^2}{\tan 30^\circ} \right) = 982 \text{ 呎}$$

radius of turn

$$R = \frac{V_{\text{true}}^2}{g \tan \phi}$$

$$80 \text{ 哩/時} = 135 \text{ 呎/秒}$$

Where R is the turn radius in feet
 V_{true} is the true airspeed in feet per second
 g is the local acceleration of gravity
 ϕ is the bank angle

9600 呎 需 71.1 秒
 9100 呎 需 67.4 秒

for true airspeed in knots and radius in feet:

$$R = 0.08854 \left(\frac{V_{\text{true}}^2}{\tan \phi} \right) \quad \left[0.08854 = \frac{1.6878^2}{32.174} \right]$$

rate of turn

$$\frac{d\theta}{dt} = \frac{g \tan \phi}{V_{\text{true}}}$$

30° 坡度 $\omega = \frac{1092.1 \times \tan 30^\circ}{80} = 7.88^\circ/\text{秒}$

where $\frac{d\theta}{dt}$ is the rate of turn in radians per second
 g is the local acceleration of gravity
 ϕ is the bank angle

45° 需 5.71 秒
 180° 需 22.84 秒
 360° 需 45.69 秒

for true airspeed in knots and rate of turn in degrees per second:

$$\frac{d\theta}{dt} = \frac{1092.1 \tan \phi}{V_{\text{true}}} \quad \left[1092.1 = \frac{57.3 \times 32.174}{1.6878} \right]$$