Instrument Approach Math

Standard rate turn radius (up to 170 kts)
r = (nm/min) / 3
Turn radius @ 25° bank
$r = (nm/min)^2 / 9$

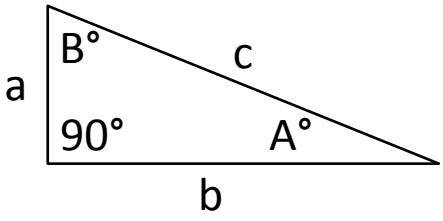
Descent Gradient (degrees)
Gradient = Flight levels to lose divided by miles to lose them
VVI = (nm/min) x gradient x 100

Top of Descent
3° Gradient – three times altitude in thousands
2.5° Gradient - four times altitude in thousands

Conversions:
1 sm = 5,280'
1 nm = 6,076'
1 nm = 1.15 sm
1 m = 3.281'
1,852 m = 1 nm

www.code7700.com

Given a right triangle and 2 items (2 sides or a side and an angle) you can find a third.



a = (c) sin(A)
a = (c) cos(B)
a = (b) tan(A)
a = b / tan(B)
a = c / sec(B)
a = c / csc(A)
b = (c) sin(B)
b = (c) cos(A)
b = a / tan(A)
b = (a) tan(B)
b = c / sec(A)
b = c / csc(B)
c = a / sin(A)
c = b / sin(B)
c = b / cos(A)
c = a / cos(B)
c = (b) sec(A)
c = (a) sec(B)
c = (a) csc(A)
c = (b) csc(B)
$A = \sin^{-1}(a/c)$
$A = \tan^{-1}(a/b)$
$B = \cos^{-1}(a/c)$
$B = \tan^{-1}(b/a)$