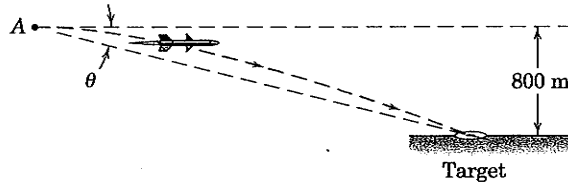


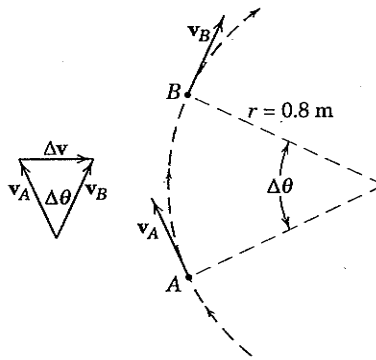
Problems from Engineering 102 (Dynamics)

- 2/78** A rocket is released at point A from a jet aircraft flying horizontally at 1000 km/h at an altitude of 800 m. If the rocket thrust remains horizontal and gives the rocket a horizontal acceleration of $0.5g$, determine the angle θ from the horizontal to the line of sight to the target.



Problem 2/78

- 2/108** A particle moves on a circular path of radius $r = 0.8$ m with a constant speed of 2 m/s. The velocity undergoes a vector change Δv from A to B. Express the magnitude of Δv in terms of v and $\Delta\theta$ and divide it by the time interval Δt between A and B to obtain the magnitude of the average acceleration of the particle for (a) $\Delta\theta = 30^\circ$, (b) $\Delta\theta = 15^\circ$, and (c) $\Delta\theta = 5^\circ$. In each case, determine the percentage difference from the instantaneous value of acceleration.



Problem 2/108