

Large Heat Seeking Missiles

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A heat seeking missile locks on to the exhaust of its target and therefore moves at constant speed but in a varying direction. Here we use the approximation that the missile travels in a straight line to the point of interception in order to compute the intercept time. We also restrict attention to the case that the missile is fired when the target is directly overhead. If the target moves with speed u and the target with speed v at a height h , then

$$h^2 + u^2 t^2 = v^2 t^2$$

from which we can solve for t .

A heat seeking missile would point towards the target at all times. Here the missile points towards the point of interception.