

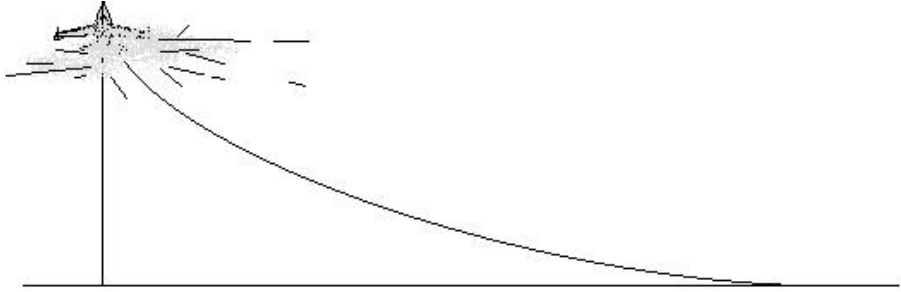
A jet is flying at a miles per hour. A missile is pursuing the jet at b miles per hour. We will assume that $0 < a < b$.



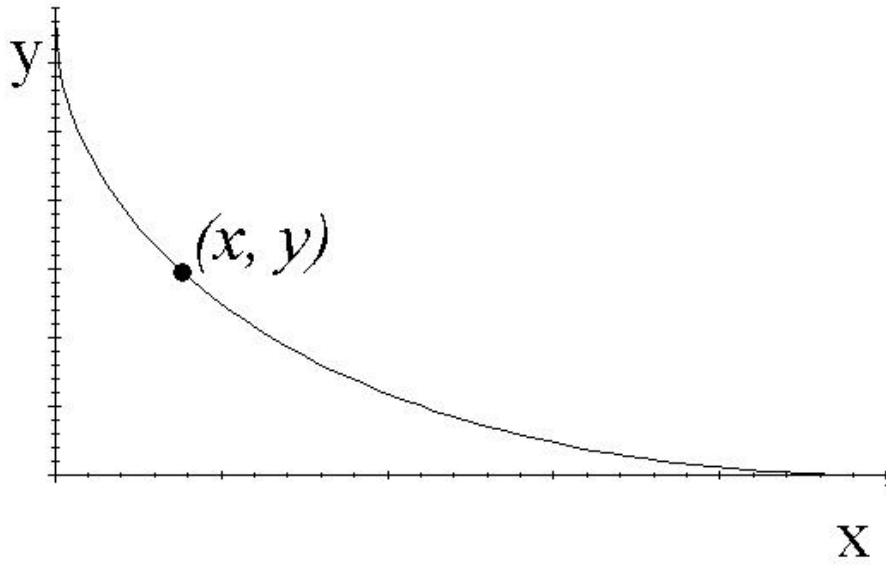
The missile's guidance system keeps it pointing at the jet at all times.



Eventually, the missile will overtake the jet.



The path that the missile travels along is called a *pursuit curve*.



$$\ln \left(v + \sqrt{1 + v^2} \right) = p \ln \frac{x}{x_0}$$

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$$1 + v^2 = \left(\left(\frac{x}{x_0} \right)^p - v \right)^2$$

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$$y = \frac{1}{2x_0^p} \int x^p dx - \frac{x_0^p}{2} \int x^{-p} dx$$

$$y = \frac{1}{2x_0^p} \frac{x^{p+1}}{p+1} - \frac{x_0^p}{2} \frac{x^{1-p}}{1-p} + \text{const}$$