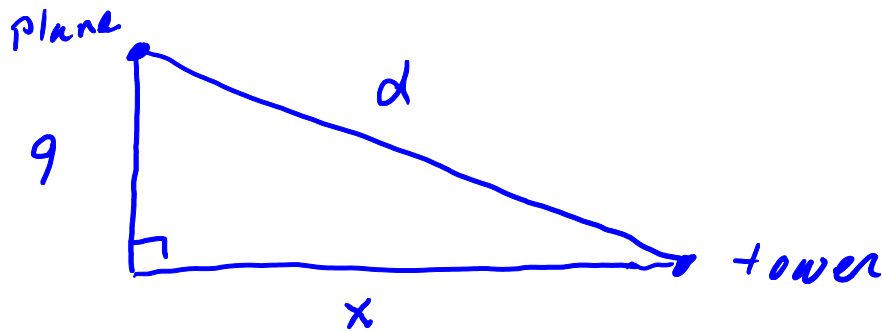


A military plane is flying directly toward an air traffic control tower, maintaining an altitude of 9 miles above the tower. The radar detects that the distance between the plane and the tower is 15 miles and that it is decreasing at a rate of 710 mph. What is the ground speed of the plane?



$$x^2 + 81 = d^2, \quad 2xx' = 2dd'$$

$$x' = \frac{dd'}{x}, \quad \text{when } d = 15$$

$$x^2 = 225 - 81$$

$$x^2 = 144$$

$$x = 12$$

$$x' = \frac{15 \cdot (710)}{12}$$

$$x' = 897.5 \text{ mph.}$$