Rate, Distance, and Time (Assignment 1)

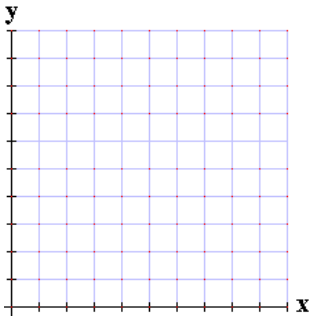
1. An airplane flying from San Francisco to New York flies with a constant speed of 1000 km/h.

a) How far will it travel in 2 hours?

b) How far can it travel in 4.5 hours?

c) How far can it travel in *x* hours?

d) Write an equation relating the number of kilometers the plane has traveled, *y*, to time since take-off in hours, *x*. Graph this equation.



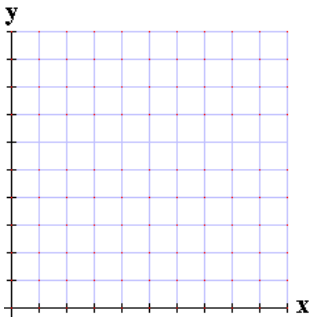

e) If the plane departed at 11:15 am, and the distance between San Francisco and New York is 4100 kilometers, that time will the plane land?

2. Grace is heading home driving with a constant speed of 34 miles per hour. She began her trip 95 miles from home.

a) How far from home will Grace be after 2 hours?

b) How far from home will Grace be after 30 minutes?

c) Write an equation relating her distance from home in miles, *y*, to the time she has spent driving in hours, *x*. Graph this equation.




d) How long will it take Grace to get home?

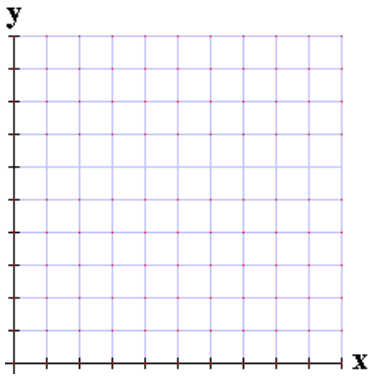
3. John's hot air balloon is rising into the sky at a constant rate of speed. After 5 minutes, he is already 600 feet off the ground.

a) How fast is the hot air balloon rising?

b) How high off the ground will John be in 22 minutes?

c) How long will it take John to be 1,100 feet off the ground?

d) John happens to live in Boulder, Colorado which is where he took off. Boulder's elevation above sea level is 5,430 feet. Write an equation relating John's elevation above sea level in feet, *y*, to the time since he took off in minutes, *x*. Graph this equation.




e) The troposphere ends at about 52,000 feet above sea level over Colorado. Once John enters the stratosphere, he will not be able to breathe. How long will John's hot air balloon ride last before he asphyxiates and dies?