

March 5

SWBAT:

Graph Parametric Functions

Important Dates for Calculus:

Tuesday March 12 - 1:00 - 2:00 (room 115)

Wednesday April 10 - 6:00 (Gateway HS)
Calculus Bowl

Saturday April 13 - 8:00 - 11:15 (room 5)
practice AP test

Saturday April 27th - TBD

Wednesday May 8th - 6:45ish (room 115 and 5)
Bagels and the AP test!

Two ships are sailing in the fog.

Ship A's horizontal distance is given by the equation $900-3t$
and vertical distance is given by $2t$

Ship B's horizontal distance is given by the equation $4t$
and vertical distance is given by $100 + t$



Will the ships run into each other?

Parametric Equations: equations where one independent variable is used to define two (or more) dependent variables

Ship A

$$x(t) = 900 - 3t$$
$$y(t) = 2t$$

Ship B

$$x(t) = 4t$$
$$y(t) = 100 + t$$

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Ship B

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Two ships are sailing in the fog.

Ship A's horizontal distance is given by the equation $900 - 3t$
and vertical distance is given by $2t$

Ship B's horizontal distance is given by the equation $4t$
and vertical distance is given by $100 + t$

Write an equation for each ship for y in terms of x .

Ship A

$$x(t) = 900 - 3t$$

$$y(t) = 2t$$

$$x = 900 - 3t$$

$$t = \frac{x - 900}{-3} = \frac{900 - x}{3}$$

$$y = 2\left(\frac{900 - x}{3}\right)$$

Ship B

$$x(t) = 4t$$

$$y(t) = 100 + t$$

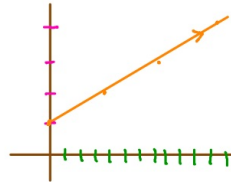
$$x = 4t$$

$$t = \frac{x}{4}$$

$$y = 100 + \frac{x}{4}$$

Graph
 $x = 4t$
 $y = t + 1$

t	$x = 4t$	$y = t + 1$
0	0	1
1	4	2
2	8	3
3	12	4



Assignment #11
pg 615 #8 - 18
(even), 19, 20

Find an equation
for y in terms
of x

solve $x(t)$ for t

$$x = 4t \rightarrow t = \frac{x}{4}$$

Substitute t into y

$$y = t + 1 \rightarrow y = \frac{x}{4} + 1$$