February 28

A farmer has to transport a fox, a goose and a sack of grain across a river. The boat is so small that there is room only for him and one of the others at a time, but if he leaves the fox and goose together the fox will kill the goose, and if the goose and the sack of grain are left together the goose will eat the grain. How does he get them all over?

February 28

Students will verbally explain how to graph parametric functions

(using the words: independent, dependent, terms…)

Important Dates for Calculus:

Wednesday March 12 - 12:00 - 2:00 (room 115)

Thursday March 27 - MOCK AP EXAM

Wednesday April 9 - 6:00 (Gateway HS)
Calculus Bowl

Wednesday May 7th - 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

Ship B

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?

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

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

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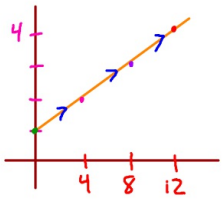
Write an equation for each ship for y in terms of x.

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

Ship B
$x(t) = 4t \rightarrow t = \frac{x}{4}$
$y(t) = 100 + t$
$y = 100 + \frac{x}{4}$

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

t	x	y
0	0	1
1	4	2
2	8	3
3	12	4



Find an equation for y in terms of x

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

$y = t + 1$

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