Math 1030 #14c

Linear Modeling

Applications

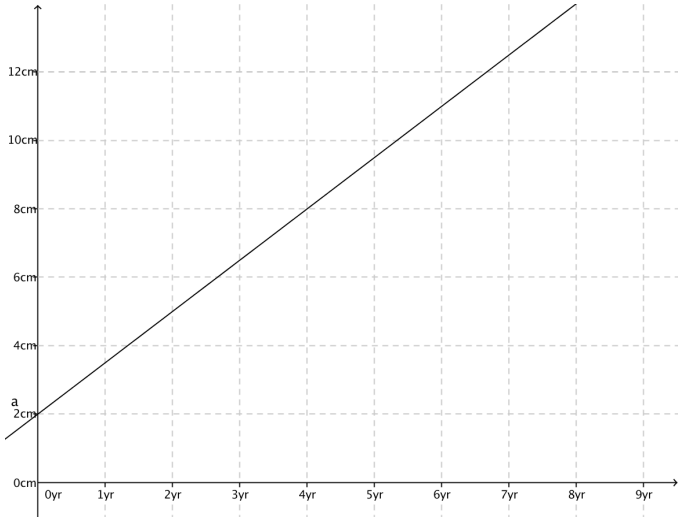
Linear Function

Linear Equation

Rate of Change

Price-Demand Function

EX 1: When your first child is born, you purchase a tree to plant. This graph shows the diameter of the tree as a function of time after you planted it.



a) How much does the diameter increase each year?

b) When is the diameter 10 cm?

c) What was the diameter when you planted the tree?

d) When the child is six, what is the diameter of the tree?

e) Write an equation of this relationship.

EX 2: Your prize-winning ant colony is in a state of emergency. The population is declining at a linear rate and there is nothing you can do about it. You make a table of the population of ants:

days since start of year	t	18	34	62	84
number of ants	n	9328	8872	8074	7747

a) Find a linear equation that describes your ant colony population as a function of the number of days since the beginning of the year.

b) How many ants did you have at your New Year's party? (day #0)

c) When will the entire ant colony be dead?

d) The ant colony fair requires a minimum population of 1000. When will your ant colony become ineligible to defend its 1st prize at the fair?