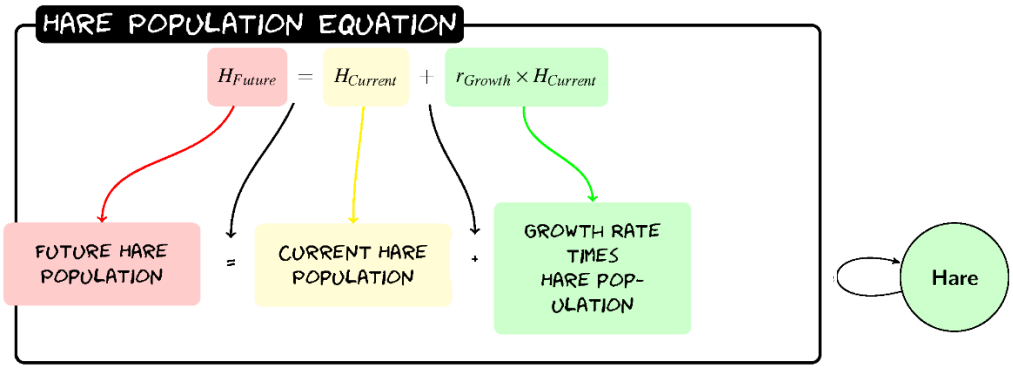
The Maths of Predators and Preys

Don't get Eaten by the Wolf

Name: _____ Date: _____

Hares

No predators

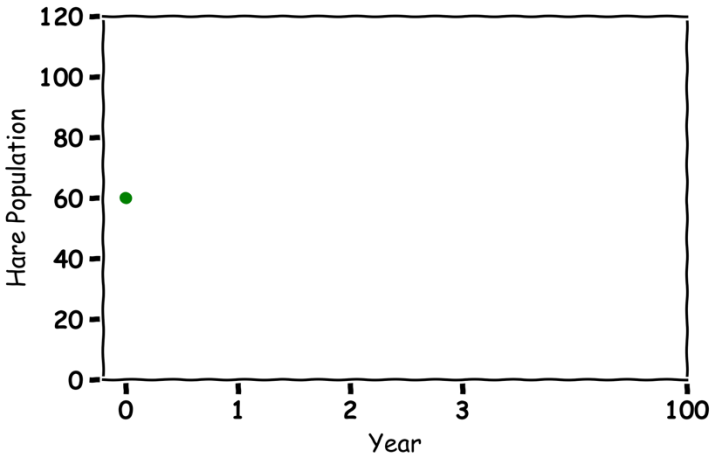


Given a population of 60 Hares and a **birth rate of 0.2** what would the population be after three years?

$$H_{Future} = H + 0.2(H)$$

Year	*Hare Population*
0	60
1	
2	
3	

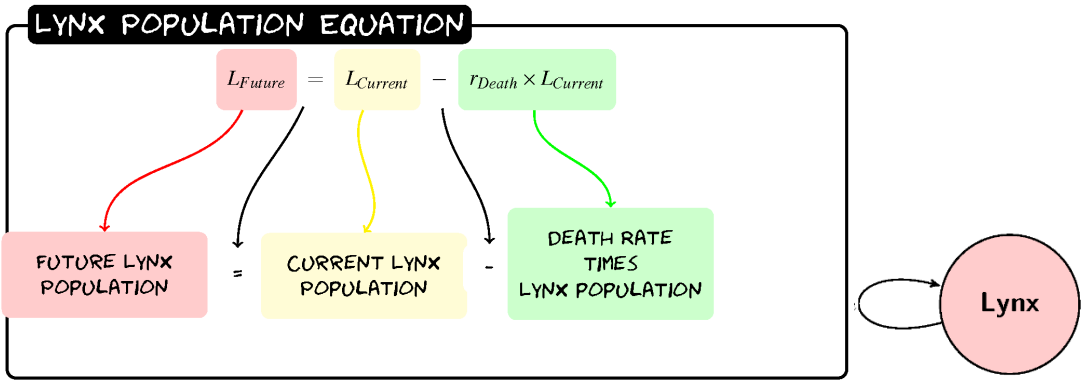
Sketch the Graph.



Guess what would happen in 100 years?

Lynx

No Prey

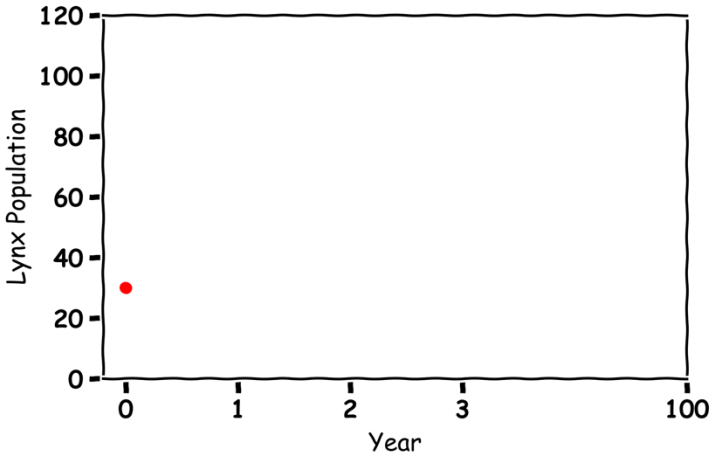


Given a population of 30 Lynxes and a **death rate of 0.1** what would the population be after three years?

$$L_{Future} = L - 0.1(L)$$

Year	*Lynx Population*
0	30
1	
2	
3	

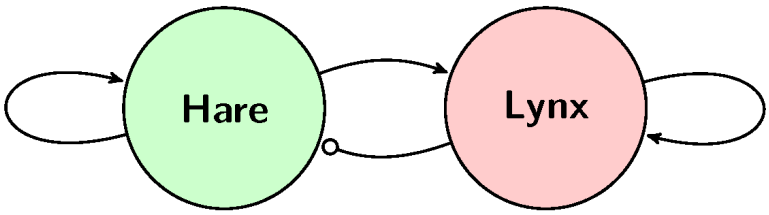
Sketch the Graph.

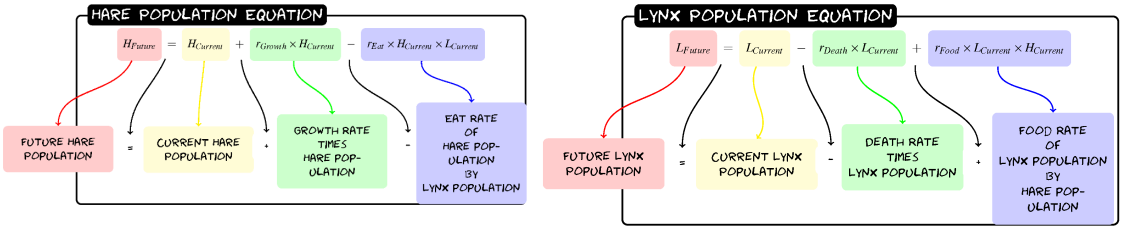


Guess what would happen in 100 years?

Hares and Lynxes

Label the graph:





Given a population of 60 Hares and 30 Lynxes with a birth rate of 0.2, a death rate of 0.1, a eat rate of 0.005 and a food rate of 0.002 what would the populations be after three years?

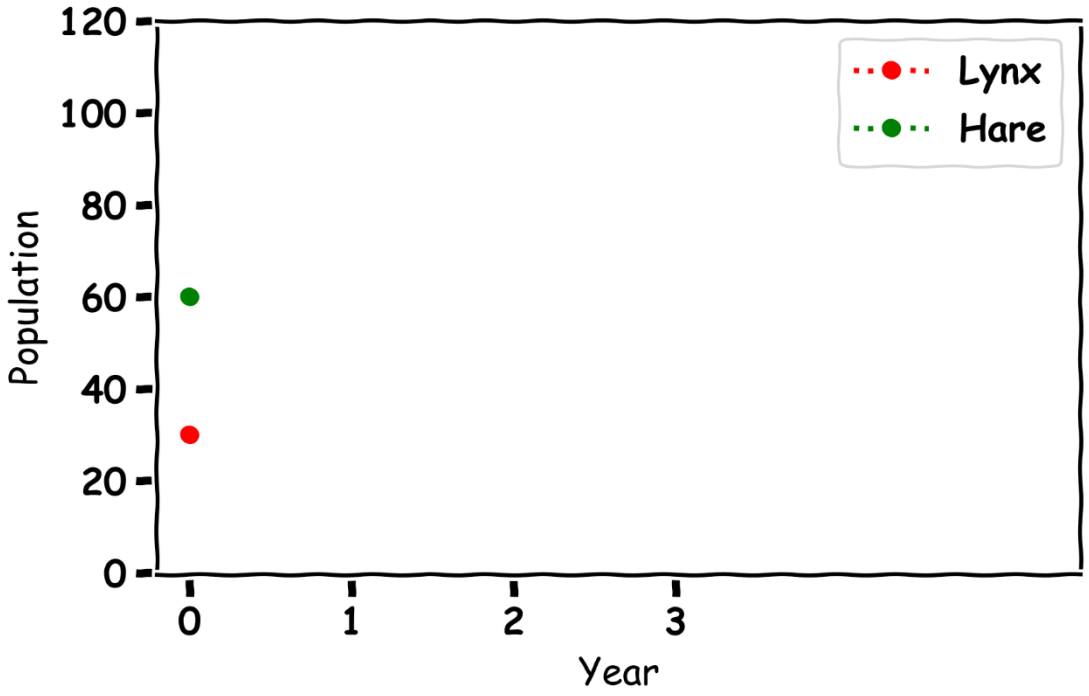
Hare	Value	Lynx	Value
Birth	0.2	**Death**	0.1
Eat	0.005	**Food**	0.002

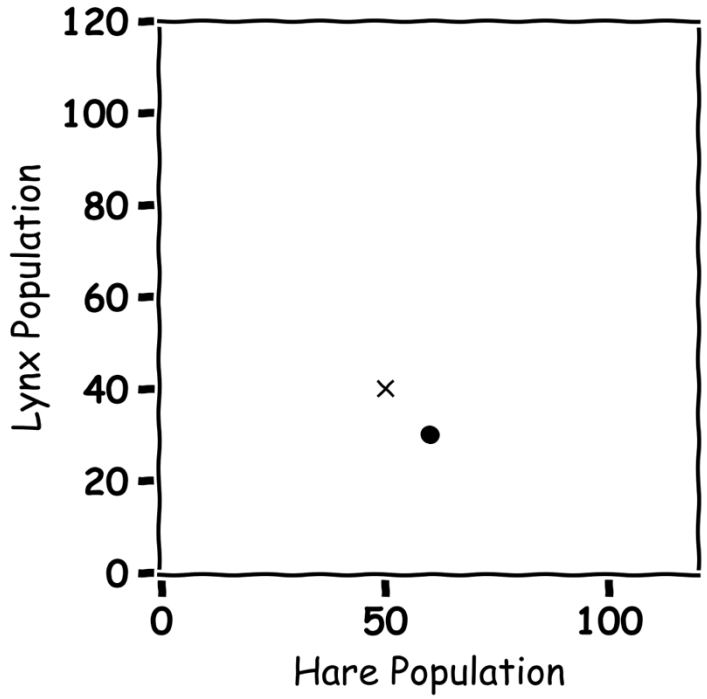
$$H_{Future} = H + 0.2(H) - 0.005(H)(L)$$

$$L_{Future} = L - 0.1(L) + 0.002(L)(H)$$

Year	*Hare Population*	*Lynx Population*
0	60	30
1		
2		
3		

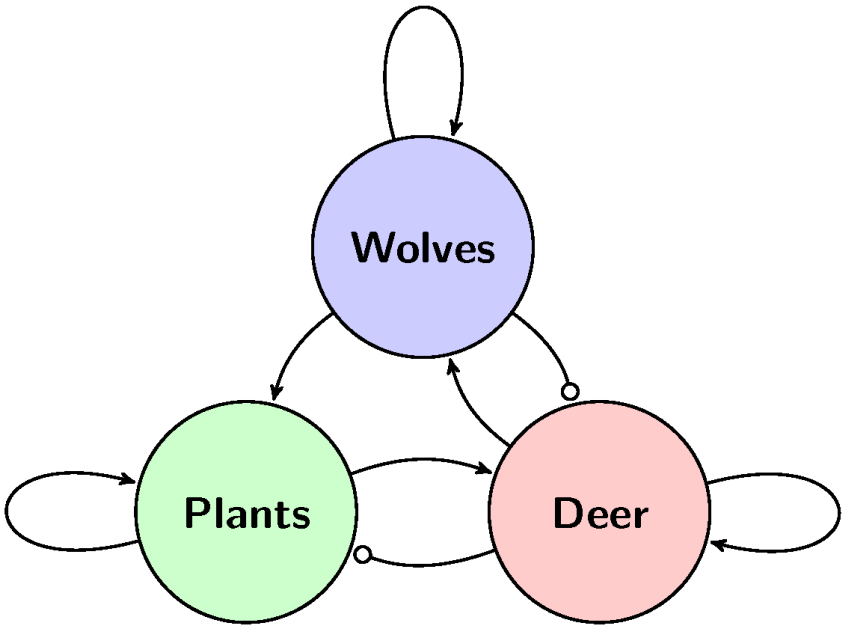
Sketch the graph:



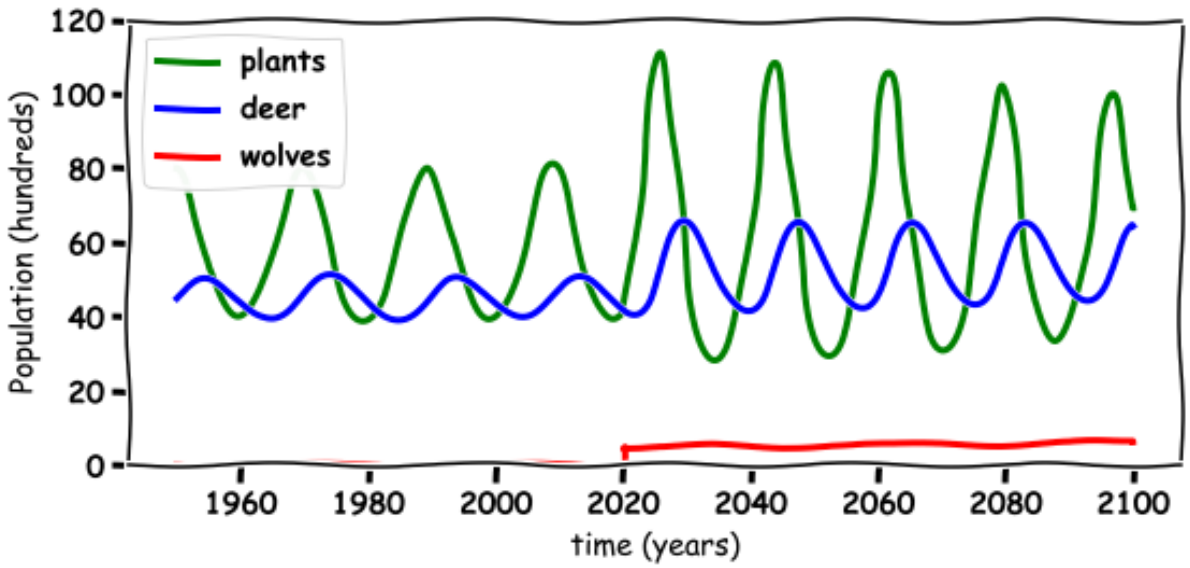


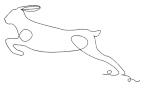
Don’t get Eaten by the Wolf

Label the graph



Describe what is happening in the below graph:





Discussion Questions

1. What happened to the environment when the wolves are re-introduced?

2. What happened to the wolf population when they are re-introduced?

3. What happened to the deer population when the wolves are re-introduced?

4. Do you think the wolves should have been re-introduced in Ireland?

5. What else could you model with these Equations?