Activity — Predator-Prey Patterns

A team of ecologists decided to study the fluctuations in the populations of the lynx and its primary prey, the snowshoe hare. They monitored both populations for a number of years and recorded their observations. The data they gathered is found in the table below.

Year	Lynx Population	Hare Population	Other Observations
1	30	50	
2	5	25	low lynx birth rate
3	5	50	lynx eating mice—unusual
4	10	70	food is plentiful for hares
5	25	100	
6	45	150	high lynx birth rate
7	65	175	winter food scarce for hares
8	95	160	hares are starving
9	115	100	many hares eaten by lynx
10	100	60	
11	80	40	
12	40	20	lynx are starving
13	5	50	lynx leave the area
14	5	75	
15	10	120	high hare birth rate
16	30	160	
17	60	180	greatest number of hares seen
18	100	150	trees and shrubs badly chewed
19	120	70	greatest number of lynx seen
20	90	45	many young hares die

1. Using the grid below, plot two line graphs (on the same axes). One line will represent the lynx population over time. The other line will represent the hare population over time. Remember to label the axes and scales.

2. By examining your graph, answer the questions below:

    a) Do you notice any patterns in the changes of the hare population?

    b) Do you notice any patterns in the changes in the lynx population?

c) Do you notice any relationship between the changes in the lynx population and the changes in the hare population?

3. Examine your graph and the "other observations" from the data table and answer the following questions.

a) Suggest a reason why the hare population was so high in year 16.

b) Suggest a reason why the lynx population was so low in year 14.

c) Suggest a reason why the hare population declined from year 8 to year 11.

d) Suggest a reason why the lynx population rose from year 4 to year 8.

e) Predict the size of the hare population in year 26. Explain how you arrived at your prediction.

f) Predict the size of the lynx population in year 26. Explain how you arrived at your prediction.