Mathematics 172

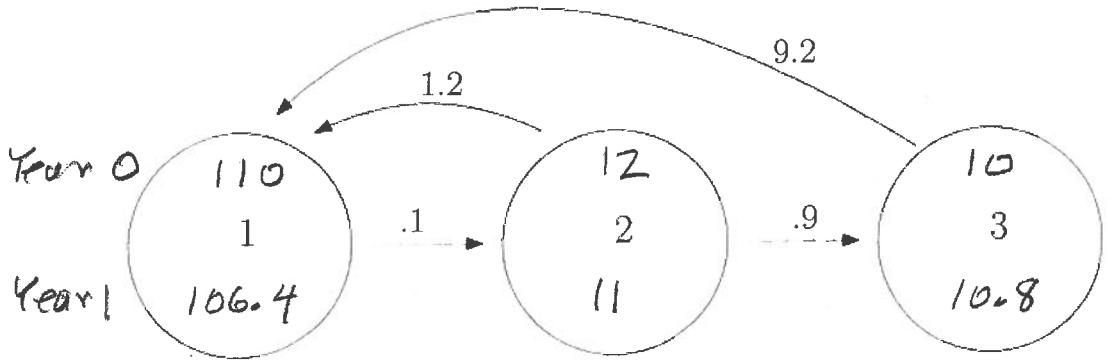
Quiz 30 **Name:** Key

You must show your work to get full credit.

A type of wild parsley has three stages. Stage 1 is seedling. Stage 2 is juveniles. Stage 3 is adults. A population of this parsley is growing in a meadow. Assume

Proportion of stage 1 that live to stage 1 is	.1
Proportion of stage 2 that live to stage 3 is	.9
Average number of offspring to a stage 2 individual is	1.2
Average number of offspring to a stage 3 individual is	9.2

This can be summarized in a loop diagram:



If we start out with 110 seedlings, 12 juveniles, and 10 adults, then compute the following:

$1.2(12) + 9.2(10)$ Number in Stage 1 next year: 106.4

$.1(110)$ Number in Stage 2 next year: 11

$.9(12)$ Number in Stage 3 next year: 10.8

$1.2(11) + 9.2(10.8)$ Number in Stage 1 year after next: 112.56

$.1(106.4)$ Number in Stage 2 year after next: 10.64

$.9(11)$ Number in Stage 3 year after next: 9.9