* Formalize the types of problems from last time:

*Xn*denotes the population size at the beginning of day *n.*

Suppose at the beginning of day 0, the population has size 1

*X0* = 1.

Assumption 1. Suppose that each day there are 2 births.

|  |  |  |
| --- | --- | --- |
| 1 (+2 births) | 3 (+2 births) | 5(+2 births) |
| N = 0 | N=1 | N=2 |

Q. How many individuals are there at the beginning of day 1, day 2, day 3?

X1= 3

X2= 5

X3=7

(linear)

Assumption 2. Suppose instead that there are 3 births per individual at the beginning of the day, ((if there are 2 individuals at the beg. of day, there are 6 births that day))

and 1 death per individual.

|  |  |  |
| --- | --- | --- |
| 1 + (2\*1) | 3 +(2\*3) | 9 +(2\*9) |
| N = 0 | N=1 | N=2 |

Q. How many individuals are there at the beginning of day 1, day 2, day 3?

X1 = 3

X2 = 9

X3 = 27

(exponential)