FST Name:

Notes 4.2 Date: Block:

***4.2 Arithmetic Sequences***

**Recall: Recursive Formula Example.** Consider the arithmetic sequence. What are the first three terms of the sequence? What is the 100th term of the sequence?

 $\left\{\begin{array}{c}a\_{1}=3\\a\_{n}=a\_{n-1}+5\end{array}\right.$

**Arithmetic Sequences: Explicit Formula**

**Example.** Give the recursive and explicit notation for the arithmetic sequence. $10, 12, 14, 16, 18, … $

 Recursive Explicit

**Practice.** Give the recursive and explicit notation for the arithmetic sequence. $46, 40, 34, 28, 22, … $

 Recursive Explicit

Consider the arithmetic sequence defined by $\left\{\begin{array}{c}a\_{1}=12\\a\_{n}=a\_{n-1}+3, n>1\end{array}\right.$

a) Is the sequence defined explicitly or recursively? b) What does $a\_{n-1}$ mean?

c) What is the first term and common difference?

d) Write the first 4 terms of the sequence? e) What is the 312th term of the sequence?

**Example.** For each of the following problems, the information about the following sequence refers to an arithmetic sequence. Write both a recursive and explicit formula for each sequence.

$1) p\_{3}=106, p\_{4}=89, p\_{5}=72$ Recursive: Explicit:

2) $a\_{8}=21 and a\_{27}=97$ Recursive: Explicit: