

Topic: Arithmetic Sequences

values (terms)
 Example: $2, 5, 8, 11, \dots, ?, \dots$
 names $\rightarrow a_1, a_2, a_3, a_4, \dots, a_n, \dots$

Common difference: $d = 3$

Formulas:	<u>Explicit Formula</u>	<u>Recursive Formula</u>
	$a_1 = 2$	$a_1 = 2$
	$a_n = a_1 + (n-1) \cdot d$	$a_n = a_{n-1} + d$
Ex:	$a_{17} = 2 + (17-1) \cdot 3$ $= 50$	$a_{17} = ?$
	$a_{101} = 2 + (101-1) \cdot 3$ $= 302$	$a_2 = a_1 + 3 = 5$ $a_3 = a_2 + 3 = 8$ \vdots

Arithmetic Sequence:
 term halfway between 2
 terms is the arithmetic
mean (average) of the 2
 terms.

Example: arithmetic sequence has

$$a_{20} = 15$$

$$a_{22} = 25$$

find a_{21}

$$a_{21} = \frac{a_{20} + a_{22}}{2} = \frac{15 + 25}{2} = 20$$

Example: Arithmetic Seq has

$$a_{11} = 13$$

$$a_{15} = 27$$

$$a_{13} = \frac{a_{11} + a_{15}}{2} = \frac{13 + 27}{2} = 20$$

$$a_{12} = \frac{a_{11} + a_{13}}{2} = \frac{13 + 20}{2} = 16.5$$

TI-83 or TI-84

- graphing calculator
required

- may be same as one used for
another class