

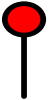
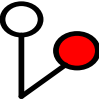
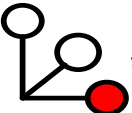
1.1 – Arithmetic Sequences

Introduction to (General) Sequences

– **sequence** → a _____ in a _____
 where each _____ is called a _____

• sequence notation – $a_1, a_2, a_3, \dots, a_n$

• sequence representations – we can represent a sequence in three ways:

1.) _____ → Ex:    _____, _____

2.) _____ → Ex: applying, bathing, cuddling, _____, _____

3.) _____ → Ex: 3, 10, 24, 45, _____, _____

Specific Sequence # 1 – Arithmetic Sequence

– **arithmetic sequence** → a sequence where the _____ between _____ terms is a constant, called _____, the _____

Example 1: Complete each problem.

a.) Is the given sequence arithmetic? – 2, 4, 10, 16, ... If so, what is the value of d?	b.) Is the given sequence arithmetic? 18, 15, 12, 10, ... If so, what is the value of d?	c.) An arithmetic sequence has $a_1 = 20$ and $d = -4$. What is the fifth term of the sequence?
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“Nth Term Formula” of Arithmetic Sequence: Used to find ANY term of an arithmetic sequence

Consider an arithmetic sequence whose first term is _____ and whose common difference is _____:

a_1	→	1st term (a_1)
_____	→	2nd term ($a_2 =$ _____)
_____ = _____	→	3rd term ($a_3 =$ _____)
_____ = _____	→	4th term ($a_4 =$ _____)
_____ = _____	→	5th term ($a_5 =$ _____)

(General) n^{th} term Formula: _____ or _____ → some notes about this formula...

- formula will always be a _____
- make sure your final nth term formula is _____

Example 2: Find what is indicated for each arithmetic sequence.

a.) $a_1 = -6$ and $d = 7$, find the 16 th term	b.) Find a_{40} for the sequence $-9, -17, -25, \dots$	c.) Write the nth term formula (equation) for the sequence $8, 17, 26, 35, \dots$
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Example 3: Considering all given sequences are arithmetic – Find what is asked.

a.) The 20 th term of the sequence is 101 and the common difference is 3. What is the first term?	b.) What is the common difference for the sequence where the first term is 13 and the 28 th term is -149 ?
c.) Which term of the sequence $1, 5, 9, \dots$ is 97?	d.) The thirty-second term in the sequence is 534 and the fourteenth term is 228. What is the tenth term of the sequence?

– **arithmetic means** → represent the _____ of an arithmetic sequence

Ex: Circle the 3 arithmetic means between 30 and 74: $19, 30, 41, 52, 63, 74, 85, 96, \dots$

Example 4: Complete each problem. Assume both sequences are arithmetic.

a.) Find the four arithmetic means for $16, _, _, _, _, 91$	b.) Find the two arithmetic means between 52 and 10.
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