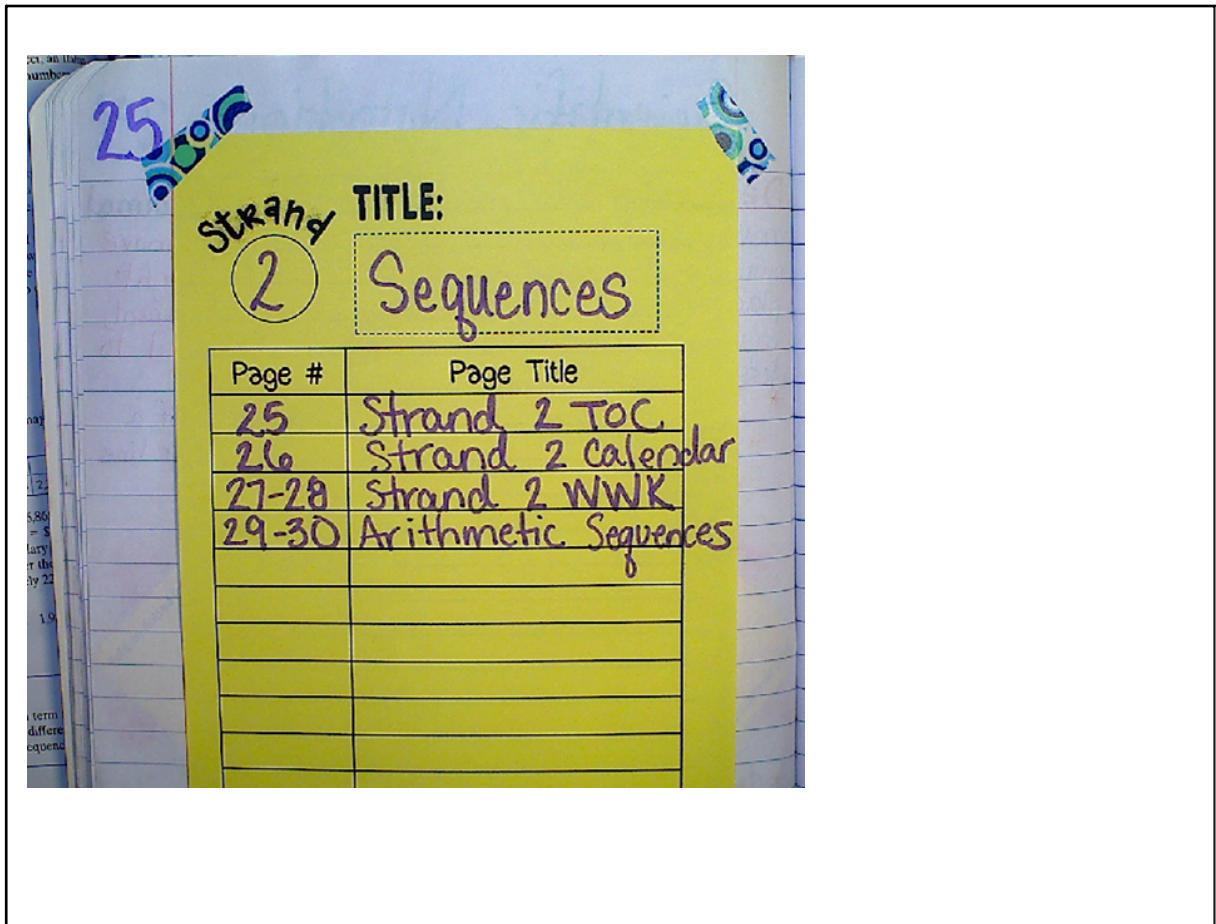




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TOC page 39 Arithmetic Sequences

Sequence - a list of #'s that are related to each other by a rule

Arithmetic sequence - a sequence in which each term after the first differs from the preceding term by a constant amount

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TOC 39 Arithmetic Sequences

a_n	=	a_1	+	$(n-1)$	d
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↑
glue
down

↑
glue
down

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Page 39 Arithmetic Sequences

	plug in the 1 st term (a_1)	one less than the number of terms	plug in the common difference
n^{th} term			

a_1 : 1st term
 a_2 : 2nd term
 a_3 : 3rd term
 a_n : n^{th} term

d = common difference between consecutive terms

How to find d .

given the sequence: $1, 076, 865$;
 $1, 304, 152$; $1, 531, 439$; $1, 758, 726$

a_1
 a_2 a_3 a_4
 $d = a_2 - a_1$, or $a_3 - a_2$ or $a_4 - a_3$ & so forth

$$d = 1,304,152 - 1,076,865$$

$$d = 227,287$$

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Page 40 Arithmetic Sequences Examples

Example 1: Write the first six terms of the arithmetic sequence with the first term 100 and the common difference 20.

$$\begin{array}{ll}
 a_1 = 100 & a_4 = 160 \\
 a_2 = 120 & a_5 = 180 \\
 a_3 = 140 & a_6 = 200
 \end{array}$$

$100, 120, 140$
 $\quad \quad \quad \uparrow \quad \uparrow$
 $\quad \quad \quad +20 \quad +20$

Example 2: Write the first six terms of the arithmetic sequence with the first term being 8 and the common difference being -3

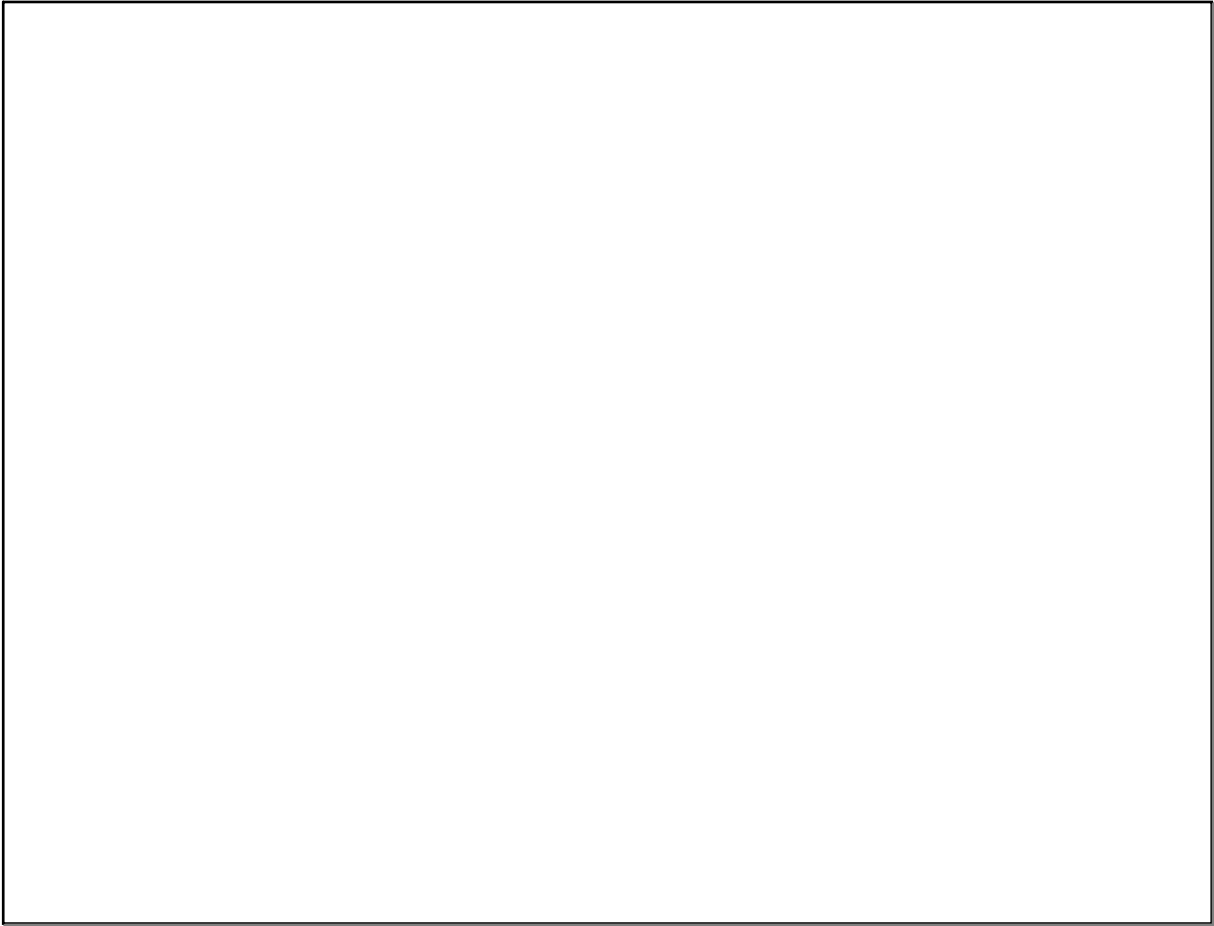
$$\begin{array}{ll}
 a_1 = 8 & a_4 = -1 \\
 a_2 = 5 & a_5 = -4 \\
 a_3 = 2 & a_6 = -7
 \end{array}$$

$8, 5, 2, -1$
 $\quad \quad \quad \downarrow \quad \downarrow \quad \downarrow$
 $\quad \quad \quad -3 \quad -3 \quad -3$

Example 3: Find the ninth term of the arithmetic sequence whose first term is 6 & whose common difference is -5.

$$\begin{aligned}
 a_n &= a_1 + (n-1)d \\
 a_9 &= 6 + (9-1)(-5) \\
 a_9 &= 6 + (8)(-5) \\
 a_9 &= 6 - 40 \\
 a_9 &= -34
 \end{aligned}$$

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Sep 23-10:37 AM