Sec 11-1 Arithmetic Sequences
(Air - ith - met - ic)

(Ex.) 91, 83, 75, ___ , ___ , ___ , ___

Find next 91, 83, 75, 67, 59, 51, 43
4 terms.
$d = -8$ This is an arithmetic
              Sequence.

Def: An arithmetic Sequence is a
Sequence in which each term after
the first is found by adding a
Constant, called the "Common difference",
letter "d", to the previous term.

Try P. 652 # 5,6

(5.) 12, 16, 20, 24 , 28 , 32 , 36 $d = 4$

(6.) 3, 1, -1, -3 , -5 , -7 , -9 $d = -2$

Arithmetic   From $\boxed{Ex\ 1}$
Sequence

91	83	75	
a_1	a_2	a_3	a_n
$91 + 0(-8)$	$91 + 1(-8)$	$91 + 2(-8)$	$a_1 + (n-1)\cdot 8$
$a_1 + 0\cdot d$	$a_1 + 1d$	$a_1 + 2d$	$a_1 + (n-1)d$

☆

Formula: $\boxed{a_n = a_1 + (n-1)d}$

where a_n is your answer, a_1
is the first term, d is the
constant change, and n is the
pattern n<u>u</u>mber.

Try p. 652   # 7-10

⑦ $a_1 = 5$, $d = 3$ 5, 8, 11, 14, 17

⑧ $a_1 = 14$, $d = -2$ 14, 12, 10, 8, 6

⑨ $a_1 = 3$, $d = -5$, $n = 24$

$a_n = a_1 + (n-1)d$ ⑩ $a_1 = -5$, $d = 7$, $n = 13$

$a_n = 3 + (23) - 5$ $a_{13} = -5 + (12)7$

$= 3 + -115$

$\boxed{a_{24} = -112}$ $a_{13} = -5 + 84$

$\boxed{a_{13} = 79}$

Try # 11, 12

⑪ 68 is the ___th term of -2, 3, 8...

$$a_n = a_1 + (n-1)d$$

$$68 = -2 + (n-1)5$$

$$68 = -2 + 5n - 5$$

$$68 = 5n - 7$$

$$+7 \qquad\qquad +7$$

$$\frac{75}{5} = \frac{5n}{5}$$

$$\boxed{n = 15}$$ 15th Term

⑫ a_{13} when -17, -12, -7

a_1 -17, n is 13, d = 5

$$a_{13} = -17 + (12)5$$

$$a_{13} = -17 + 60$$

$$a_{13} = 43$$

P. 652 # 16 - 36