



5-Minute Check

(over Lesson 4-7)

Transparency 4-8

BE-1A FRIDAY 2-2-07

Determine whether each sequence is an arithmetic sequence. If it is, state the common difference.

1. $-21, -17, -12, -6, 1, \dots$
2. $1.1, 2.2, 3.3, 4.4, \dots$
3. Find the next three terms of the arithmetic sequence $3.5, 2, 0.5, -1.0, \dots$
4. Find the n th term of the sequence described by $a_1 = -2, d = 4, n = 7$.
5. Write an equation for the n th term of the sequence $19, 17, 15, 13, \dots$
6. **Standardized Test Practice** A sequence is formed by writing the perimeter of squares. The side of the first square measures 1 unit. If the measure of the side of the square is increased by 1 unit for each new term in the sequence, what is the common difference between terms?

(A) 16

(B) 4

(C) 2

(D) 1

ANSWERS

1. no
2. yes; 1.1
3. $-2.5, -4.0, -5.5$
4. 22
5. $a_n = -2n + 21$
6. B

①

Suppose you have a sequence like

12, 23, 34, 45, ...

Since you know $a_1 = 12$ and $d = 11$
 you can UWK and find any $a_n = a_1 + (n-1)d$

BUT WHAT IF YOU HAVE TO FIND MANY
 a_n terms — CAN you keep from having
 to do the ENTIRE $a_n = a_1 + (n-1)d$ EACH
 time?

Yes, find the special a_n for THIS
 sequence — use a_1, d AND simplify

ex) $a_1 = 12$ $d = 11$

12, 23, 34, ...

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

$$\underline{a_n} = 12 + (n-1)11 = 12 + \overbrace{(n-1)}^{n-1} 11$$

$$\underline{a_n} = 12 + 11n - 11$$

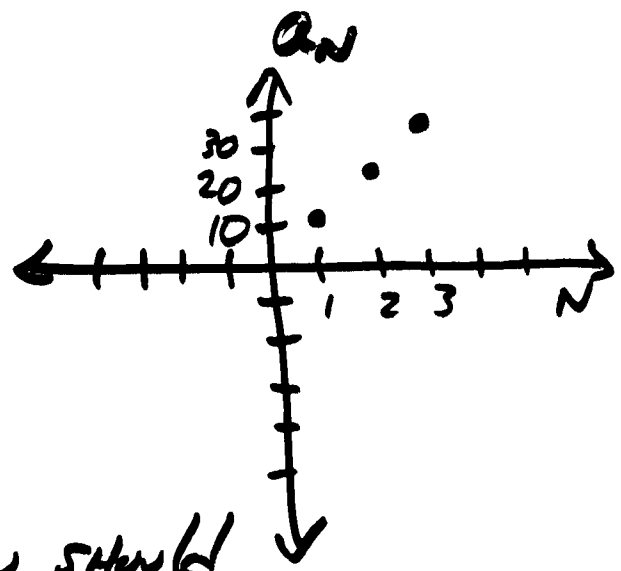
$$\underline{a_n} = 11n + 1$$

ck: $11(1) + 1 = 12 \checkmark$
 $11(2) + 1 = 23 \checkmark$

②

If you use A T-Table AND graph

N	$11(N+1)$
1	$11(1)+1$
2	$11(2)+1$
3	$11(3)+1$



You get A LINE. You should
NOT CONNECT THE DOTS. Why?

N	$a_n = ?$
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- term number
- STARTS AT 1
- NEVER < 0
- NEVER a fraction

the value
OF THE term
AT EACH
term number.

(3)

WRITE AN EQUATION for THE
SEQUENCE, then graph THE first
5 terms:

6, 12, 18, 24, ...

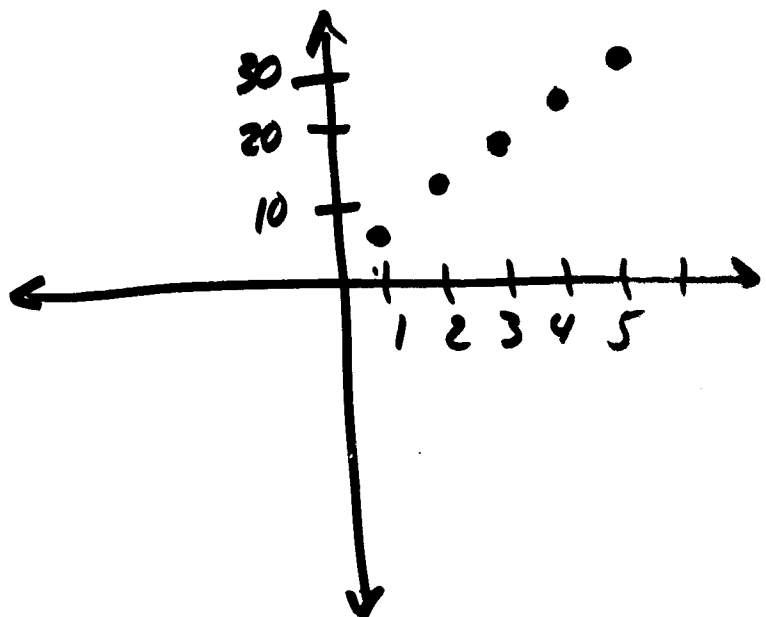
$$a_1 = 6 \quad d = 6 \quad a_n = a_1 + (n-1)d$$

$$a_n = 6 + (\overbrace{n-1}^{\text{times}}) 6$$

$$a_n = 6 + 6n - 6$$

$$\boxed{a_n = 6n}$$

n	<u>$a_n = 6n$</u>
1	6
2	12
3	18
4	24
5	30



Group Practice:

Worksheet 4-7

For # 13, also graph the first 5 terms

Summary: When you need to find many terms in a sequence, use a_1 and d to get an " a_n " equation for that sequence.

Use $\underline{a_n} = a_1 + (n-1)d$

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