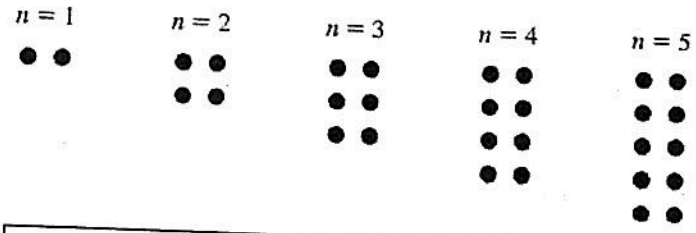
11-3

Essential Question: What does the graph of an arithmetic sequence look like?

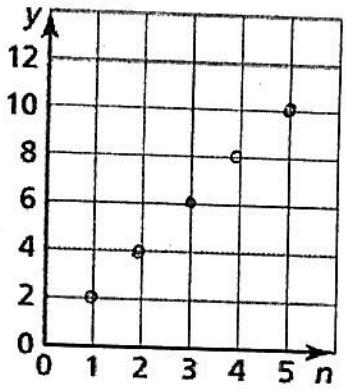
Do Now:

a) Use the figure pictured below to complete the table.



n	1	2	3	4	5
y (number of dots)	2	4	6	8	10

b) Plot the points from the table onto the graph.



c) Does it make sense to connect the points? Be ready to justify your response.

No, you can't have a fraction of a place or fraction of a dot.

Graphing Sequences

- the term's position number, n, in the sequence is graphed as the x-value
- the term a_n is graphed as the corresponding y-value
- plot the ordered pairs (n, a_n)
- graph as a scatter plot (do not connect the dots).

Consider the arithmetic sequence 2, 6, 10, ...

a. Create a table of values for the sequence.
b. Write an explicit formula that represents the sequence.
c. Graph the sequence.
d. What is the slope of the line?

(a)

n	a_n
1	2
2	6
3	10
4	14

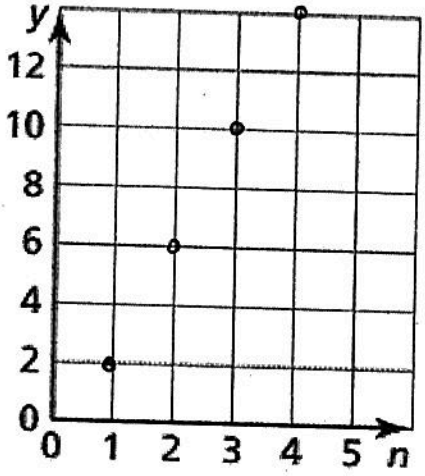
(b) Explicit Formula

$a_1 = 2$

$d = 4$

$a_n = 2 + 4(n-1)$

(c)



(d) slope is 4

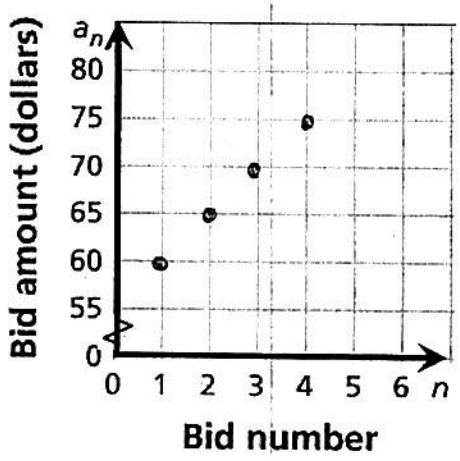
Graphing Arithmetic Sequences

(1) Online bidding for a purse increases by $5 for each bid after the first person bids $60.

(a) Write a function rule that represents the arithmetic sequence.

(b) Graph the function.

n (# of people)	a_n ($ bid)
1	60
2	65
3	70
4	75



(c) If the winning bid was $105, how many bids were there?

explicit rule to find any number of bids

$a_1 = 60$ $\quad a_n = 60 + 5(n-1)$

$d = 5$

bid is $105, a_n

$105 = 60 + 5(n-1)$

$45 = 5(n-1)$

$9 = n-1$

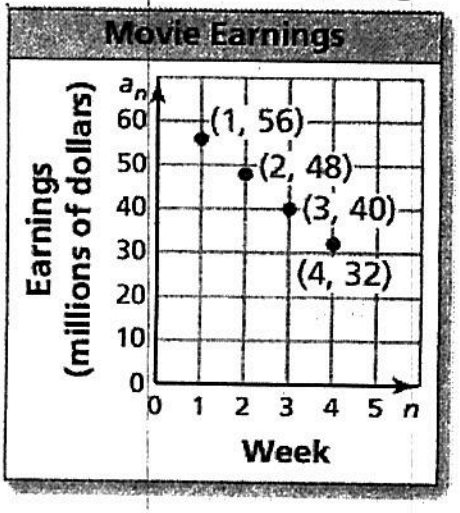
$n = 10$ 10 bids

(2) The amount of money a movie earns each week after its release can be approximated by the sequence shown in the graph.

(a) Write a function rule that represents the arithmetic sequence.

$a_1 = 56$ $\quad a_n = 56 - 8(n-1)$

$d = -8$



(b) In what week (n) does the movie earn $16 million dollars ($a_n$)?

$a_n = 56 - 8(n-1)$

$16 = 56 - 8(n-1)$

$-40 = -8(n-1)$

$5 = n-1$

$n = 6$

In the 6th week, the movie makes $16 million dollars

The TAKE AWAY

The points of the graph of an arithmetic sequence form a line.

The slope of the line is the common difference.