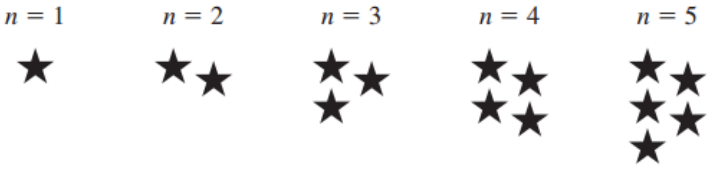
(1) Write a sequence that represents the number of smiley faces in each group. Is the sequence arithmetic? Explain.

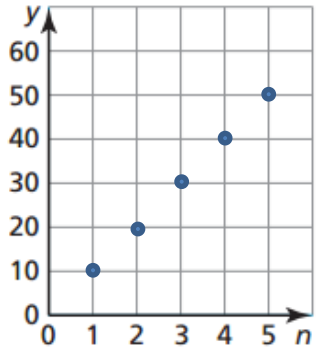
4, 6, 8, 10, …

Yes, this sequence is an arithmetic sequence because there is a common difference of 2.

(2) Use the figure to complete the table and plot the points.



Number of stars, *n*	1	2	3	4	5
Number of sides, *y*	10	20	30	40	50



Write an equation that models the pattern displayed by the figure.

$a_1 = 10$ $a_n = 10 + 10(n - 1)$
$d = 10$

$y = 10 + 10(n - 1)$

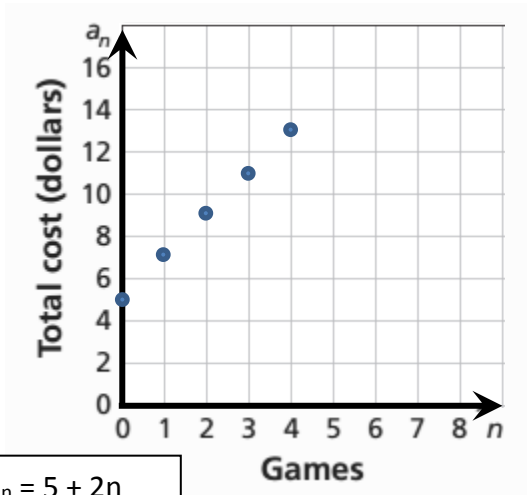
(3) A carnival charges \$2 for each game after you pay a \$5 entry fee.

(a) Write a function rule that represents the situation.

$a_n = 5 + 2n$ ***or*** **$a_n = 7 + 2(n - 1)$**

(b) Graph the function.

n	a_n	
0	5	← a_0 (y-intercept)
1	7	← a_1 (1st term)
2	9	
3	11	
4	13	



(c) How many games can you play when you take \$29 to the carnival?

You can play 12 games when you have \$29.

$a_n = 7 + 2(n - 1)$
$29 = 7 + 2(n - 1)$
$29 = 7 + 2n - 2$
$29 = 5 + 2n$
$24 = 2n$
$12 = n$

$a_n = 5 + 2n$
$29 = 5 + 2n$
$24 = 2n$
$12 = n$