Chapter 1B Quiz Review

For the following sequences decide whether they are arithmetic. If yes, then find the common difference, the first term and the next 2 terms in the sequence.

1. 3,15,27,39...

yes $a_1=3$ cd: +12

2. 10,15,22.5...

no

3. 19,13,7,1...

yes. $a_1=19$ cd: -6

Write the recursive and explicit formulas for each sequence.

4. 5,9,13,17...

RF: $a_n=\begin{cases}5 & n=1\\ a_{n-1}+4 & n>1\end{cases}$

EF: $a_n=1+4n$

5. 25,18,11,4...

RF: $a_n=\begin{cases}25 & n=1\\ a_{n-1}-7 & n>1\end{cases}$

EF: $a_n=25-7(n-1)$

6. Find the 25th term for #4

$a_{25}=1+4(25)=\boxed{101}$

7. Find a_{19} for #5

$a_{19}=25-7(19-1)=\boxed{-101}$

Evaluate

Other page

8. $87+80+73+...+10$

9. 8 terms, $a_1=2$ & $a_8=74$

10. $\sum_{n=1}^{9}(1+3n)$

11. $-10-18-26...-a_{14}$

12. $\sum_{n=1}^{6}(5(n-1)-2)$

13. Cubes are stacked in the shape of a pyramid. The top row has 1 cube, the second row has 3, and the third row has 5.

a. Write an explicit formula for the situation. $a_n=1+2(n-1)$ OR $a_n=-1+2n$

b. How many cubes would be in the 10th row? $a_{10}=-1+2(10)=\boxed{19 \text{ cubes}}$

c. How many total cubes were used to make the pyramid if there are 12 rows?

$a_{12}=-1+2(12)=23 \rightarrow S_{12}=\frac{12(1+23)}{2}$

$\boxed{S_{12}=144 \text{ cubes}}$

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14. If $S_n=-768$ & $a_1=8$ & $a_n=-104$, solve for n.

15. Given $S_{12}=636$ & $a_1=-9$ find a_{12}

Use a graph to solve each equation

16. $-x+2=x^2$

$x=1$ & -2

17. $2(x-1)^2-5=3|x-1|-3$

$x=-1$ & 3

Use a graph to solve each inequality

18. $x^2+2x-3>0$

x-int: 1 & -3

$(-\infty,-3)\cup(1,\infty)$

19. $x^2-7x-8\le 0$

x-int: 8 & -1

$[-1,8]$

8. $a_1 = 87$
$a_n = 10$

$a_n = 87 - 7(n-1)$
$10 = 87 - 7(n-1)$
$-77 = -7(n-1)$
$11 = n-1$
$12 = n$

$S_{12} = \frac{12(87+10)}{2}$

$\boxed{S_{12} = 582}$

9. $S_8 = \frac{8(2+74)}{2}$

$\boxed{S_8 = 304}$

10. $n = 9$
$a_1 = 4$
$a_9 = 28$

$S_9 = \frac{9(4+28)}{2}$

$\boxed{S_9 = 144}$

11. $a_1 = -10$
$n = 14$
$a_{14} = -10 - 8(14-1)$
$a_{14} = -114$

$S_{14} = \frac{14(-10-114)}{2}$

$\boxed{S_{14} = -868}$

12. $n = 6$
$a_1 = -2$
$a_6 = 23$

$S_6 = \frac{6(-2+23)}{2}$

$\boxed{S_6 = 63}$

14. $-768 = \frac{n(8-104)}{2}$

$-1536 = -96n$
$\boxed{n = 16}$

15. $636 = \frac{12(-9+a_n)}{2}$

$1272 = 12(-9+a_n)$
$106 = -9 + a_n$
$\boxed{115 = a_n}$