

Name: _____

Guide

Date: _____

Write the **explicit rule** for each arithmetic sequence. Show your checked work:

1. 10, 15, 20, 25, ...

$$a_1 = 10 \quad a_n = a_1 + d(n-1) \quad a_1 = 5(1) + 5$$

$$d = 15 - 10 = 5 \quad a_n = 10 + 5(n-1) \quad a_1 = 5 + 5$$

$$a_n = 10 + 5n - 5 \quad a_1 = 10 \checkmark$$

$$\boxed{a_n = 5n + 5}$$

2. -9, -2, 5, 12, 19, ...

3. 23, 20, 17, 14, ...

$$a_1 = 23 \quad a_n = a_1 + d(n-1) \quad a_1 = -3(1) + 26$$

$$d = 20 - 23 = -3 \quad a_n = 23 - 3(n-1) \quad a_1 = -3 + 26$$

$$a_n = 23 - 3n + 3 \quad a_1 = 23$$

$$\boxed{a_n = -3n + 26}$$

4. 8, 6.5, 5, 3.5, 2, ...

Find the **nth term** for each arithmetic sequence:

5. $a_1 = -5, d = 4, n = 9$

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

$$a_9 = -5 + 4(9-1)$$

$$a_9 = -5 + 4(8)$$

$$a_9 = -5 + 32$$

$$\boxed{a_9 = 27}$$

6. $a_1 = 13, d = -5/2, n = 29$

Complete each statement:

7. 97 is the 26th term of: -3, 1, 5, 9

$$97 = -3 + 4(n-1) \quad 104 = 4n$$

$$97 = -3 + 4n - 4 \quad 26 = n$$

$$97 = 4n - 7$$

8. -10 is the _____th term of: 14, 12.5, 11, 9.5

Write the **formula** for the sequence that represents the following scenarios:

9. After making his first deposit, Paul has \$758 in his checking account. The next month, the balance is \$836. The balance after the third month is \$914.

$$d = \underline{78}$$

$$a_1 = \underline{758}$$

$$\begin{array}{r} 836 \\ -758 \\ \hline 78 \end{array}$$

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

$$a_n = 758 + 78(n-1)$$

$$a_n = 758 + 78n - 78$$

Formula: _____

$$\underline{a_n = 78n + 680}$$

10. The table shows the number of people at a school who caught the flu each month after the flu shot was given:

Month	1	2	3	4	5
# of People	30	25	20	15	10

$$d = \underline{\hspace{2cm}}$$

$$a_1 = \underline{\hspace{2cm}}$$

Formula: $\underline{\hspace{4cm}}$

Find the indicated term(s) in each arithmetic sequence:

11. a_{15} for $-3, 3, 9, \dots$

$$a_{15} = -3 + 6(15-1)$$

$$a_{15} = -3 + 6(14)$$

$$a_{15} = -3 + 84$$

$$a_{15} = 81$$

12. Find the 38th term of $103, 99, 95, \dots$

13. Find the 43rd term of $-124, -122, -120, \dots$

$$a_{43} = -124 + 2(43-1)$$

$$a_{43} = -124 + 2(42)$$

$$a_{43} = -124 + 84$$

$$a_{43} = -40$$

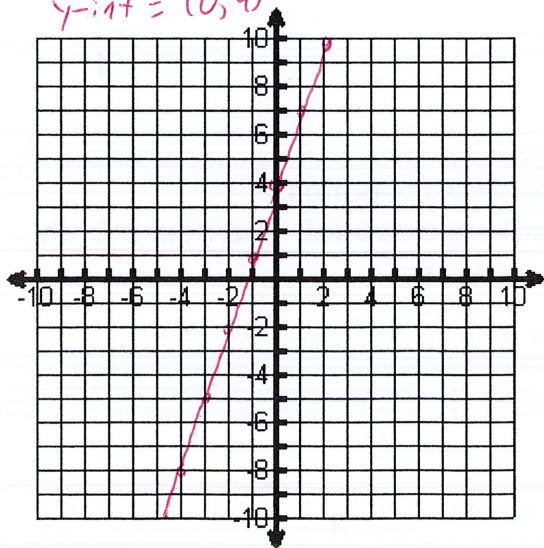
14. The first term is 6 and the common difference is -4 . Find the next 3 terms.

15. Graph: $a_n = 3n + 4$

$$y = 3x + 4$$

$$\text{slope} = \frac{3}{1}$$

$$y\text{-int} = (0, 4)$$



16. Graph: $6, 2, -2, \dots$

