Explicit Formula – Day 2

Unit 6: Representations of Linear Relations

Find the explicit formula.

1. $-17, -25, -33, -41, \ldots$

$-25-(-17) = -8$
$-33-(-25) = -8$
$-41-(-33) = -8$

$a_n = d \cdot n + b$
$-17 = -8(1) + b$
$-17 = -8 + b$
$+8 \quad +8$
$-9 = b$

$a_n = -8n - 9$

2. $-13, -113, -213, -313, \ldots$

$-113-(-13) = -100$
$-213-(-113) = -100$
$-313-(-213) = -100$

$a_n = d \cdot n + b$
$-13 = -100(1) + b$
$-13 = -100 + b$
$+100 \quad +100$
$87 = b$

$a_n = -100n + 87$

3. $38, 43, 48, 53, \ldots$

$43-(38) = 5$
$48-(43) = 5$
$53-(48) = 5$

$a_n = d \cdot n + b$
$38 = 5(1) + b$
$38 = 5 + b$
$-5 \quad -5$
$33 = b$

$a_n = 5n + 33$

4. $-8, 92, 192, 292, \ldots$

$92-(-8) = 100$
$192-(92) = 100$
$292-(192) = 100$

$a_n = d \cdot n + b$
$-8 = 100(1) + b$
$-8 = 100 + b$
$-100 \quad -100$
$-108 = b$

$a_n = 100n - 108$

5. $-17, -23, -29, -35, \ldots$

$-23-(-17) = -6$
$-29-(-23) = -6$
$-35-(-29) = -6$

$a_n = d \cdot n + b$
$-17 = -6(1) + b$
$-17 = -6 + b$
$+6 \quad +6$
$-11 = b$

$a_n = -6n - 11$

6. $17, 13, 9, 5, \ldots$

$13-(17) = -4$
$9-(13) = -4$
$5-(9) = -4$

$a_n = d \cdot n + b$
$17 = -4(1) + b$
$17 = -4 + b$
$+4 \quad +4$
$21 = b$

$a_n = -4n + 21$

7. $-23, -28, -33, -38, \ldots$

$-28-(-23) = -5$
$-33-(-28) = -5$
$-38-(-33) = -5$

$a_n = d \cdot n + b$
$-23 = -5(1) + b$
$-23 = -5 + b$
$+5 \quad +5$
$-18 = b$

$a_n = -5n - 18$

8. $-9, 1, 11, 21, \ldots$

$1-(-9) = 10$
$11-(1) = 10$
$21-(11) = 10$

$a_n = d \cdot n + b$
$-9 = 10(1) + b$
$-9 = 10 + b$
$-10 \quad -10$
$-19 = b$

$a_n = 10n - 19$

9. $5, 15, 25, 35, \ldots$

$15-(5) = 10$
$25-(15) = 10$
$35-(25) = 10$

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

$a_n = 10n - 5$

10. $-11, 9, 29, 49, \ldots$

$9-(-11) = 20$
$29-(9) = 20$
$49-(29) = 20$

$a_n = d \cdot n + b$
$-11 = 20(1) + b$
$-11 = 20 + b$
$-20 \quad -20$
$-31 = b$

$a_n = 20n - 31$

11. $-36, -46, -56, -66, \ldots$

$-46 - (-36) = -10$
$-56 - (-46) = -10$
$-66 - (-56) = -10$

$a_n = d \cdot n + b$
$-36 = -10(1) + b$
$-36 = -10 + b$
$+10 \quad +10$
$-26 = b$

$a_n = -10n - 26$

12. $-1, 7, 15, 23, \ldots$

$7 - (-1) = 8$
$15 - (7) = 8$
$23 - (15) = 8$

$a_n = d \cdot n + b$
$-1 = 8(1) + b$
$-1 = 8 + b$
$-8 \quad -8$
$-9 = b$

$a_n = 8n - 9$

13. $-33, -133, -233, -333, \ldots$

$-133 - (-33) = -100$
$-233 - (-133) = -100$
$-333 - (-233) = -100$

$a_n = d \cdot n + b$
$-33 = -100(1) + b$
$-33 = -100 + b$
$+100 \quad +100$
$67 = b$

$a_n = -100n + 67$

14. $17, 9, 1, -7, \ldots$

$9 - (17) = -8$
$1 - (9) = -8$
$-7 - (1) = -8$

$a_n = d \cdot n + b$
$17 = -8(1) + b$
$17 = -8 + b$
$+8 \quad +8$
$25 = b$

$a_n = -8n + 25$

15. $22, 12, 2, -8, \ldots$

$12 - (22) = -10$
$2 - (12) = -10$
$-8 - (2) = -10$

$a_n = d \cdot n + b$
$22 = -10(1) + b$
$22 = -10 + b$
$+10 \quad +10$
$32 = b$

$a_n = -10n + 32$

16. $13, 11, 9, 7, \ldots$

$11 - (13) = -2$
$9 - (11) = -2$
$7 - (9) = -2$

$a_n = d \cdot n + b$
$13 = -2(1) + b$
$13 = -2 + b$
$+2 \quad +2$
$15 = b$

$a_n = -2n + 15$

17. $23, 13, 3, -7, \ldots$

$13 - (23) = -10$
$3 - (13) = -10$
$-7 - (3) = -10$

$a_n = d \cdot n + b$
$23 = -10(1) + b$
$23 = -10 + b$
$+10 \quad +10$
$33 = b$

$a_n = -10n + 33$

18. $13, 22, 31, 40, \ldots$

$22 - (13) = 9$
$31 - (22) = 9$
$40 - (31) = 9$

$a_n = d \cdot n + b$
$13 = 9(1) + b$
$13 = 9 + b$
$-9 \quad -9$
$4 = b$

$a_n = 9n + 4$

19. $-1, -7, -13, -19, \ldots$

$-7 - (-1) = -6$
$-13 - (-7) = -6$
$-19 - (-13) = -6$

$a_n = d \cdot n + b$
$-1 = -6(1) + b$
$-1 = -6 + b$
$+6 \quad +6$
$5 = b$

$a_n = -6n + 5$

20. $11, 9, 7, 5, \ldots$

$9 - (11) = -2$
$7 - (9) = -2$
$5 - (7) = -2$

$a_n = d \cdot n + b$
$11 = -2(1) + b$
$11 = -2 + b$
$+2 \quad +2$
$13 = b$

$a_n = -2n + 13$