Explicit Formula – Day 3

Unit 6: Representations of Linear Relations

Find the explicit formula.

1. 32, 28, 24, 20, ...

$28-(32)=-4$
$24-(28)=-4$
$20-(24)=-4$

$a_n = d \cdot n + b$
$32 = -4(1) + b$
$32 = -4 + b$
$+4 \quad +4$
$36 = b$

$a_n = -4n + 36$

2. −30, 70, 170, 270, ...

$70-(-30)=100$
$170-(70)=100$
$270-(170)=100$

$a_n = d \cdot n + b$
$-30 = 100(1) + b$
$-30 = 100 + b$
$-100 \quad -100$
$-130 = b$

$a_n = 100n - 130$

3. −36, −44, −52, −60, ...

$-44-(-36)=-8$
$-52-(-44)=-8$
$-60-(-52)=-8$

$a_n = d \cdot n + b$
$-36 = -8(1) + b$
$-36 = -8 + b$
$+8 \quad +8$
$-28 = b$

$a_n = -8n - 28$

4. −10, 90, 190, 290, ...

$90-(-10)=100$
$190-(90)=100$
$290-(190)=100$

$a_n = d \cdot n + b$
$-10 = 100(1) + b$
$-10 = 100 + b$
$-100 \quad -100$
$-110 = b$

$a_n = 100n - 110$

5. −14, −6, 2, 10, ...

$-6-(-14)=8$
$2-(-6)=8$
$10-(2)=8$

$a_n = d \cdot n + b$
$-14 = 8(1) + b$
$-14 = 8 + b$
$-8 \quad -8$
$-22 = b$

$a_n = 8n - 22$

6. −10, −16, −22, −28, ...

$-16-(-10)=-6$
$-22-(-16)=-6$
$-28-(-22)=-6$

$a_n = d \cdot n + b$
$-10 = -6(1) + b$
$-10 = -6 + b$
$+6 \quad +6$
$-4 = b$

$a_n = -6n - 4$

7. 0, 30, 60, 90, ...

$30-(0)=30$
$60-(30)=30$
$90-(60)=30$

$a_n = d \cdot n + b$
$0 = 30(1) + b$
$0 = 30 + b$
$-30 \quad -30$
$-30 = b$

$a_n = 30n - 30$

8. 13, 6, −1, −8, ...

$6-(13)=-7$
$-1-(6)=-7$
$-8-(-1)=-7$

$a_n = dn + b$
$13 = -7(1) + b$
$13 = -7 + b$
$+7 \quad +7$
$20 = b$

$a_n = -7n + 20$

9. 17, −83, −183, −283, ...

$-83-(17)=-100$
$-183-(-83)=-100$
$-283-(-183)=-100$

$a_n = d \cdot n + b$
$17 = -100(1) + b$
$17 = -100 + b$
$+100 \quad +100$
$117 = b$

$a_n = -100n + 117$

10. −4, −14, −24, −34, ...

$-14-(-4)=-10$
$-24-(-14)=-10$
$-34-(-24)=-10$

$a_n = d \cdot n + b$
$-4 = -10(1) + b$
$-4 = -10 + b$
$+10 \quad +10$
$6 = b$

$a_n = -10n + 6$

11. $-6, -3, 0, 3, \ldots$

$-3-(-6)=3$
$0-(-3)=3$
$3-(0)=3$

$a_n = d \cdot n + b$
$-6 = 3(1) + b$
$-6 = 3 + b$
$-3 \quad -3$
$-9 = b$

$a_n = 3n - 9$

12. $29, 49, 69, 89, \ldots$

$49-(29)=20$
$69-(49)=20$
$89-(69)=20$

$a_n = d \cdot n + b$
$29 = 20(1) + b$
$29 = 20 + b$
$-20 \quad -20$
$9 = b$

$a_n = 20n + 9$

13. $-17, -24, -31, -38, \ldots$

$-24-(-17)=-7$
$-31-(-24)=-7$
$-38-(-31)=-7$

$a_n = d \cdot n + b$
$-17 = -7(1) + b$
$-17 = -7 + b$
$+7 \quad +7$
$-10 = b$

$a_n = -7n - 10$

14. $-26, 4, 34, 64, \ldots$

$4-(-26)=30$
$34-(4)=30$
$64-(34)=30$

$a_n = d \cdot n + b$
$-26 = 30(1) + b$
$-26 = 30 + b$
$-30 \quad -30$
$-56 = b$

$a_n = 30n - 56$

15. $25, -5, -35, -65, \ldots$

$-5-(25)=-30$
$-35-(-5)=-30$
$-65-(-35)=-30$

$a_n = d \cdot n + b$
$25 = -30(1) + b$
$25 = -30 + b$
$+30 \quad +30$
$55 = b$

$a_n = -30n + 55$

16. $-35, -33, -31, -29, \ldots$

$-33-(-35)=2$
$-31-(-33)=2$
$-29-(-31)=2$

$a_n = d \cdot n + b$
$-35 = 2(1) + b$
$-35 = 2 + b$
$-2 \quad -2$
$-37 = b$

$a_n = 2n - 37$

17. $-39, -46, -53, -60, \ldots$

$-46-(-39)=-7$
$-53-(-46)=-7$
$-60-(-53)=-7$

$a_n = d \cdot n + b$
$-39 = -7(1) + b$
$-39 = -7 + b$
$+7 \quad +7$
$-32 = b$

$a_n = -7n - 32$

18. $24, 17, 10, 3, \ldots$

$17-(24)=-7$
$10-(17)=-7$
$3-(10)=-7$

$a_n = d \cdot n + b$
$24 = -7(1) + b$
$24 = -7 + b$
$+7 \quad +7$
$31 = b$

$a_n = -7n + 31$

19. $-35, -135, -235, -335, \ldots$

$-135-(-35)=-100$
$-235-(-135)=-100$
$-335-(-235)=-100$

$a_n = dn + b$
$-35 = -100(1) + b$
$-35 = -100 + b$
$+100 \quad +100$
$65 = b$

$a_n = -100n + 65$

20. $8, -12, -32, -52, \ldots$

$-12-(8)=-20$
$-32-(-12)=-20$
$-52-(-32)=-20$

$a_n = d \cdot n + b$
$8 = -20(1) + b$
$8 = -20 + b$
$+20 \quad +20$
$28 = b$

$a_n = -20n + 28$