

Explicit Formula – Day 3

Unit 7: Representations of Exponential Relations

Find the explicit formula.

<p>1. $-0.75, -3, -12, -48, \dots$</p> $r = \frac{-3}{-0.75} = 4 \quad a_n = a_1 (r)^{n-1}$ $a_1 = -0.75 \quad a_n = -0.75(4)^{n-1}$	<p>2. $2, 4, 8, 16, \dots$</p> $r = \frac{4}{2} = 2 \quad a_n = a_1 (r)^{n-1}$ $a_1 = 2 \quad a_n = 2(2)^{n-1}$
<p>3. $4, -24, 144, -864, \dots$</p> $r = \frac{-24}{4} = -6 \quad a_n = a_1 (r)^{n-1}$ $a_1 = 4 \quad a_n = 4(-6)^{n-1}$	<p>4. $-3, 12, -48, 192, \dots$</p> $r = \frac{12}{-3} = -4 \quad a_n = a_1 (r)^{n-1}$ $a_1 = -3 \quad a_n = -3(-4)^{n-1}$
<p>5. $-4, 24, -144, 864, \dots$</p> $r = \frac{24}{-4} = -6 \quad a_n = a_1 (r)^{n-1}$ $a_1 = -4 \quad a_n = -4(-6)^{n-1}$	<p>6. $38880, -6480, 1080, -180, \dots$</p> $r = \frac{-6480}{38880} = -\frac{1}{6} \quad a_n = a_1 (r)^{n-1}$ $a_1 = 38880 \quad a_n = 38880\left(-\frac{1}{6}\right)^{n-1}$
<p>7. $1.25, 5, 20, 80, \dots$</p> $r = \frac{5}{1.25} = 4 \quad a_n = a_1 (r)^{n-1}$ $a_1 = 1.25 \quad a_n = 1.25(4)^{n-1}$	<p>8. $-\frac{405}{16}, -\frac{135}{8}, -\frac{45}{4}, -\frac{15}{2}, \dots$</p> $r = \frac{-\frac{135}{8}}{-\frac{405}{16}} = \frac{-135}{8} \cdot \frac{-16}{405} = \frac{2}{3} \quad a_n = a_1 (r)^{n-1}$ $a_1 = -\frac{405}{16} \quad a_n = -\frac{405}{16}\left(\frac{2}{3}\right)^{n-1}$
<p>9. $-1.25, -5, -20, -80, \dots$</p> $r = \frac{-5}{-1.25} = 4 \quad a_n = a_1 (r)^{n-1}$ $a_1 = -1.25 \quad a_n = -1.25(4)^{n-1}$	<p>10. $3, 12, 48, 192, \dots$</p> $r = \frac{12}{3} = 4 \quad a_n = a_1 (r)^{n-1}$ $a_1 = 3 \quad a_n = 3(4)^{n-1}$

<p>11. $-3, -9, -27, -81, \dots$</p> <p>$r = \frac{-9}{-3} = 3$ $a_n = a_1 (r)^{n-1}$</p> <p>$a_1 = -3$ $a_n = -3(3)^{n-1}$</p>	<p>12. $-1024, -256, -64, -16, \dots$</p> <p>$r = \frac{-256}{-1024} = \frac{1}{4}$ $a_n = a_1 (r)^{n-1}$</p> <p>$a_1 = -1024$ $a_n = -1024\left(\frac{1}{4}\right)^{n-1}$</p>
<p>13. $0.4, 2, 10, 50, \dots$</p> <p>$r = \frac{2}{0.4} = 5$ $a_n = a_1 (r)^{n-1}$</p> <p>$a_1 = 0.4$ $a_n = 0.4(5)^{n-1}$</p>	<p>14. $16, 8, 4, 2, \dots$</p> <p>$r = \frac{8}{16} = \frac{1}{2}$ $a_n = a_1 (r)^{n-1}$</p> <p>$a_1 = 16$ $a_n = 16\left(\frac{1}{2}\right)^{n-1}$</p>
<p>15. $1, 2, 4, 8, \dots$</p> <p>$r = \frac{2}{1} = 2$ $a_n = a_1 (r)^{n-1}$</p> <p>$a_1 = 1$ $a_n = 1(2)^{n-1}$</p>	<p>16. $4, 12, 36, 108, \dots$</p> <p>$r = \frac{12}{4} = 3$ $a_n = a_1 (r)^{n-1}$</p> <p>$a_1 = 4$ $a_n = 4(3)^{n-1}$</p>
<p>17. $-4, -\frac{4}{3}, -\frac{4}{9}, -\frac{4}{27}, \dots$ $a_n = a_1 (r)^{n-1}$</p> <p>$r = \frac{-\frac{4}{3}}{-4} = \frac{-4}{3} \cdot \frac{1}{-4} = \frac{1}{3}$</p> <p>$a_1 = -4$ $a_n = -4\left(\frac{1}{3}\right)^{n-1}$</p>	<p>18. $2, -12, 72, -432, \dots$</p> <p>$r = \frac{-12}{2} = -6$ $a_n = a_1 (r)^{n-1}$</p> <p>$a_1 = 2$ $a_n = 2(-6)^{n-1}$</p>
<p>19. $-1, 4, -16, 64, \dots$</p> <p>$r = \frac{4}{-1} = -4$ $a_n = a_1 (r)^{n-1}$</p> <p>$a_1 = -1$ $a_n = -1(-4)^{n-1}$</p>	<p>20. $-2.5, -5, -10, -20, \dots$</p> <p>$r = \frac{-5}{-2.5} = 2$ $a_n = a_1 (r)^{n-1}$</p> <p>$a_1 = -2.5$ $a_n = -2.5(2)^{n-1}$</p>