Name:_____



Math worksheet on 'Patterning - Equation from Rule for Geometric Pattern (Level 1)'. Part of a broader unit on 'Patterns and Sums - Practice'

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1

Find the correct equation that this pattern rule describes

Start at 1 and multiply by 2 for each term

$$egin{aligned} oldsymbol{a}_n &= 1 - 2(n-1) oldsymbol{a}_n &= 1 imes - 1^{n-1} \end{aligned}$$

$$egin{aligned} \mathbf{c} & \mathbf{c} & \mathbf{d} \\ a_n & \mathbf{d} & \mathbf{a}_n \end{aligned} = \mathbf{1} imes \mathbf{2}^{n-1}$$

$$oldsymbol{\ddot{a}}_n = 1 imes 2^n oldsymbol{\dot{a}}_n = 1 imes 1^{n-1}$$

2

Find the correct equation that this pattern rule describes

Start at 3 and multiply by 5 for each term

$$egin{aligned} \mathbf{a}_n &= \mathbf{3} imes \mathbf{5}^n \middle| \mathbf{a}_n &= \mathbf{1} imes \mathbf{5}^{n-1} \end{aligned}$$

$$(a_n = 3 + 5(n-1)) a_n = 3 \times 5^{n-1}$$

$$egin{aligned} \mathbf{e} & \mathbf{a}_n = a_{n-2} + a_{n-1} \ \mathbf{f} & \mathbf{a}_n = -1 imes \mathbf{5}^{n-1} \end{aligned}$$

3

Find the correct equation that this pattern rule describes

Start at 2 and multiply by 5 for each term

$$egin{aligned} \mathbf{a}_n &= 2 imes 8^{n-1} \ a_n &= 2 imes 5^{n-1} \end{aligned}$$

$$egin{aligned} \mathbf{c} & \mathbf{c} & \mathbf{c} \\ a_n & \mathbf{c} & \mathbf{c} \end{aligned} \mathbf{c} = \mathbf{5} imes \mathbf{5}^{n-1} egin{aligned} \mathbf{c} & \mathbf{c} \\ a_n & \mathbf{c} & \mathbf{c} \end{aligned}$$

$$egin{aligned} \mathbf{a}_n &= 2 imes \mathbf{4}^{n-1} \ \mathbf{a}_n &= 2 imes \mathbf{5}^n \end{aligned}$$

4

Find the correct equation that this pattern rule describes

Start at 3 and multiply by 4 for each term

$$\stackrel{\mathbf{a}}{a}_n = 3 imes 4^n \stackrel{\mathbf{b}}{a}_n = 3 imes 2^{n-1}$$

$$egin{aligned} \mathbf{c} & \mathbf{a}_n = \mathsf{3} imes \mathsf{3}^{n-1} & \mathbf{d} & \mathbf{a}_n = \mathsf{3} imes \mathsf{4}^{n-1} \end{aligned}$$

$$egin{aligned} \mathbf{e} \ a_n = 3 + 4(n-1) \ a_n = a_{n-2} + a_{n-1} \end{aligned}$$

5

Find the correct equation that this pattern rule describes

Start at 3 and multiply by 3 for each term

$$\begin{vmatrix} \mathbf{a} \\ a_n = 3 \times 7^{n-1} \end{vmatrix} \begin{vmatrix} \mathbf{b} \\ a_n = 3 \times -1^{n-1} \end{vmatrix}$$

$$oldsymbol{\hat{a}}_n = 3 imes 3^n oldsymbol{\hat{a}}_n = 3 imes 3^{n-1}$$

$$a_n = 3 + 3(n-1)$$
 $a_n = -1 \times 3^{n-1}$

6

Find the correct equation that this pattern rule describes

Start at 1 and multiply by 4 for each term

$$egin{aligned} oldsymbol{a} & oldsymbol{a} \ a_n = a_{n-2} + a_{n-1} \ oldsymbol{a} \ a_n = 1 imes 1^{n-1} \end{aligned}$$

$$egin{aligned} \mathbf{c} & \mathbf{d} & \mathbf{d} \\ a_n & \mathbf{d} & \mathbf{d} \end{aligned} = \mathbf{1} imes \mathbf{4}^n$$

$$egin{aligned} \mathbf{e} & \mathbf{a}_n = \mathsf{1} imes \mathsf{4}^{n-1} \ \mathbf{a}_n = \mathsf{1} imes \mathsf{6}^{n-1} \end{aligned}$$

7

Find the correct equation that this pattern rule describes

Start at 2 and multiply by 3 for each term

 $a_{n} = 2 + 3(n-1)$ $a_{n} = 2 \times 3^{n-1}$

$$egin{aligned} \mathbf{c} & \mathbf{d} & \mathbf{d} \\ a_n & = 5 imes 3^{n-1} & a_n = 2 - 3(n-1) \end{aligned}$$

$$\overset{\mathbf{e}}{a}_{n} = 2 \times 3^{n} \overset{\mathbf{f}}{a_{n}} = a_{n-2} + a_{n-1}$$