

Find the 5th term

① $a_1 = 100$

$$a_n = \frac{1}{2} a_{n-1}$$

$$a_2 = \frac{1}{2} \cdot a_1 \quad a_2 = \frac{1}{2} \cdot 100 = 50$$

$$a_3 = \frac{1}{2} \cdot a_2 \quad a_3 = \frac{1}{2} \cdot 50 = 25$$

$$a_4 = \frac{1}{2} \cdot a_3 \quad a_4 = \frac{1}{2} \cdot 25 = 12.5$$

$$a_5 = \frac{1}{2} \cdot a_4 \quad a_5 = \frac{1}{2} \cdot 12.5 = \boxed{6.25}$$

② Find the geometric mean

of 8 and 18.

$$g.m. = \sqrt{8 \cdot 18}$$

$$8, \underline{\pm 12}, 18$$

$$\pm \sqrt{a \cdot b}$$

③ Write the explicit formula

0, 6, 12, 18, 24, ... Arithmetic

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

$$a_n = 0 + (n-1) \cdot 6$$

$$\boxed{a_n = 6n - 6}$$

$$6(15) - 6$$

$$\boxed{84}$$

Find the sum of terms

$$(1) \quad a = 100$$

$$r = \frac{1}{2}$$

$$a^2 = 100 \Rightarrow a = 10$$

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Find the sum of terms

$$a = 10, r = \frac{1}{2}, n = 10$$

$$S_n = \frac{a(1-r^n)}{1-r}$$

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$$S_n = \frac{10(1-(\frac{1}{2})^{10})}{1-\frac{1}{2}}$$

$$S_n = \frac{10(1-\frac{1}{1024})}{\frac{1}{2}}$$

$$S_n = 20(1-\frac{1}{1024})$$

$$S_n = 20 \cdot \frac{1023}{1024}$$

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

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

④ Find the 15th term.

⑤ Find the explicit formula

~~10, 15, 22.5, 33.75, ...~~

$$r = 1.5$$

$$a_n = a_1 (r)^{n-1}$$

$$a_n = 10(1.5)^{n-1}$$

⑥ Find the 6th term.

$$a_6 = 10(1.5)^{6-1}$$

$$a_6 = 10(1.5)^5$$

$$a_6 = 75.9375$$

$$a_n = 10(1.5)^{n-1}$$

7 Write the recursive formula

$-5, -11, -17, -23, \dots$

$$a_n = a_{n-1} - 6, a_1 = -5$$

8 $2, 4, 6, 10, 16, 26, \frac{42}{16+26}, \frac{68}{26+42}, \frac{110}{42+68}$

9 Arithmetic Mean

$101, \text{---}, -115, \dots$

$$\frac{(101 + -115)}{2}$$

$26, 42, 68, 110$

Find the 5th term.

$$a_1 = 2$$

$$a_n = 3a_{n-1} - 2$$

$$a_2 = 3 \cdot a_1 - 2$$

$$3 \cdot 2 - 2$$

$$a_2 = 4$$

$$a_3 = 3 \cdot a_2 - 2$$

$$3 \cdot 4 - 2$$

$$a_3 = 10$$

$$a_4 = 3 \cdot a_3 - 2$$

$$3 \cdot 10 - 2$$

$$a_4 = 28$$

$$a_5 = 3 \cdot a_4 - 2$$

$$3 \cdot 28 - 2$$

$$82$$

5th 2

$$a_n = -n + 6$$

Explicit

$$a_n = -5 + 6 = 1$$

Find the 2nd term

$a_1 = 1$ $a_2 = 2$

$a_3 = 3$

$a_4 = 4$

$a_5 = 5$

$a_6 = 6$

$a_7 = 7$

$a_8 = 8$

$a_9 = 9$

$a_{10} = 10$

$a_{11} = 11$

$a_{12} = 12$

$a_{13} = 13$

$a_n = n$

Explicit

$a_n = 2 + (n-1)$