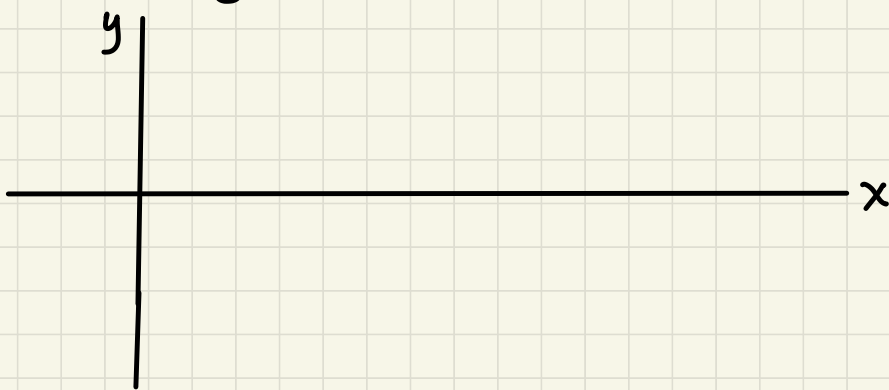


# Ch. 26 - BOARD PROBLEMS

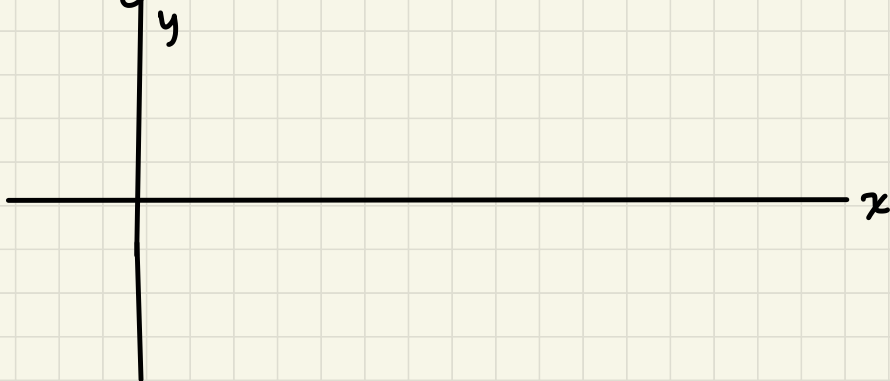
Graph.  $y = -2 \sin 2(x - \frac{\pi}{4}) + 1$



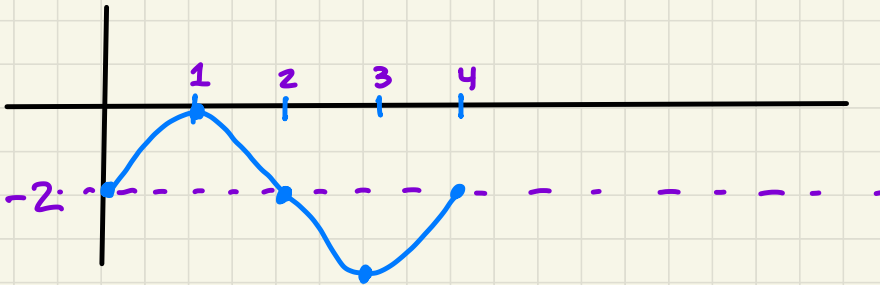
$y = \sec \frac{1}{2}(x + \frac{\pi}{2}) - 1$



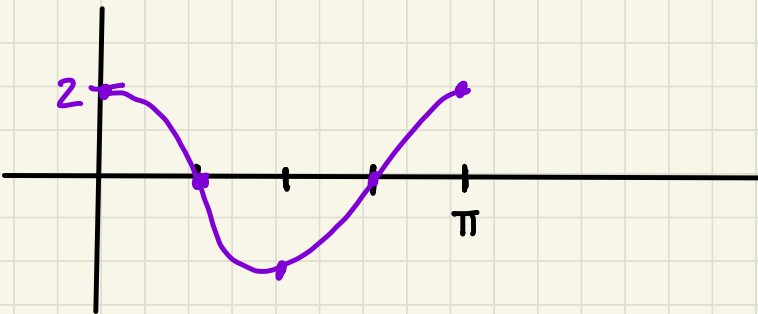
$y = \tan x + 2$



WRITE THE EQUATION.



WRITE THE EQUATION.



# Ch. 26 - ARITHMETIC SEQUENCE/SERIES

SEQUENCE - \_\_\_\_\_  
\_\_\_\_\_

ARITHMETIC SEQUENCE - \_\_\_\_\_

$\{3, 7, 11, 15, 19\} \rightarrow$  FINITE SERIES

1<sup>st</sup> TERM REPRESENTED BY \_\_\_\_\_

$n^{\text{th}}$  TERM ( $a_n$ ) CAN REPRESENT ANY TERM  
IN THE SEQUENCE.

$d$  - \_\_\_\_\_

GENERAL EQUATION

EX.  $a_n = 3 + 4(n-1)$        $a_1 =$

$a_1 = 3 + 4(\_ - 1)$        $d =$

$a_2 = 3 + 4(\_ - 1)$

$a_3 = 3 + 4(\_ - 1)$

$a_{80} = 3 + 4(\_ - 1)$

**EX. 2**  $\{-6, 4, 14, 24, 34, 44, 54\}$

GIVE:  $a_1$ , number of terms,  $d$ , equations

$a_1 =$        $d =$

# terms =       $a_n =$

**Ex. 3**  $\{3, 4\frac{1}{2}, 6, 7\frac{1}{2}, 9, 10\frac{1}{2}\}$

DESCRIBE THE SEQUENCE.

$a_1 =$        $d =$        $\# \text{ terms} =$

$a_n =$

**Ex. 4**  $\{9, 11, 13, 15, \dots\}$  INFINITE SEQUENCE

$a_1 =$        $d =$        $a_n =$

**Ex. 5** CREATE A FINITE SEQUENCE OF 5 TERMS WHERE  $a_1 =$        $d = -1.4$

$\{$

**Ex. 6** WRITE FIRST 4 TERMS OF  $a_n = 2n - 7$

$\{a_n\} = \{$

**Ex. 7** WRITE THE FIRST 4 TERMS OF  $a_n = 5 - 3n$

$a_1 =$        $d =$

$a_n = \{ \text{---}, \text{---}, \text{---}, \text{---} \}$

## FINDING A SPECIFIC TERM

Ex. 8

FIND THE 6<sup>th</sup> TERM OF  $2n-3$ .

$$S_6 =$$

SPECIFIC FORM

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

given  $a_1 = 2$   $d = -3$

FIND  $S_5 = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

Ex. 9

FIND  $S_8$  WITH  $a_1 = 2$  AND  $d = 4.5$

$$S_8 = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

EX. 10

FIND THE 15<sup>th</sup> TERM.  $a_1 = 4.3$   $a_2 = 5.1$

FIND  $d$ .  $d = a_2 - a_1$

$$S_{15} = \underline{\hspace{2cm}}$$

### Example 9

Find the eighth term of  $S_8$ , with  $a_1 = 2$  and  $d = -3$ .

$$S_8 = a_1 + (n - 1)d = (2) + (8 - 1)(-3) = 2 - 21 = -19$$

Find it the long way to confirm:  $\{2, -1, -4, -7, -10, -13, -16, -19\}$

### Example 10

Find the 15th term with  $a_1 = 4.3$ , and  $a_2 = 5.1$ .

If  $a_1 = 4.3$  and  $a_2 = 5.1$ , then  $d = a_2 - a_1 = 5.1 - 4.3 = .8$

$$S_{15} = a_1 + (n - 1)d = (4.3) + (15 - 1)(.8) = 4.3 + 11.2 = 15.5$$

### Practice Problems 3

1. Find the 8th term with  $a_1 = 9.6$ , and  $d = 12.1$ .

2. Find the 10th term with  $a_1 = \sqrt{2}$ , and  $a_2 = 4\sqrt{2}$ .

3. Find the 12th term with  $a_1 = -\frac{1}{2}$ , and  $a_2 = 1\frac{1}{4}$ .

4. Find the 20th term with  $a_1 = 25$ , and  $a_2 = 10$ .

SERIES: a sequence added together

Summation  $\sum_{k=1}^5 (2k+1) =$

k	1	2	3	4	5	$\Sigma$

Sum of sequence  $S_n = \frac{n(a_1 + a_n)}{2}$

$n$  = number of terms  
last term

$$\sum_{b=1}^5 (b+2) = a_1 = a_5 = S_n =$$

**Ex 13** Compute the series.

$$\sum_{k=1}^{10} \left(\frac{3}{2}k - 1\right) \quad a_1 = \quad a_n = \quad n =$$

**Ex 14** Compute the series.

$$\sum_{k=-3}^8 \left(\frac{5}{8}\right)k \quad \frac{\text{number of (first + last) terms}}{2}$$