TASKS

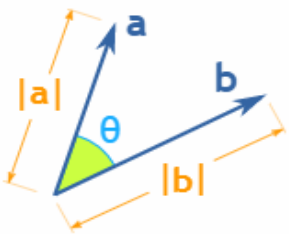
1. Ali went to visit his grandmother in USA and she gave him 368 pennies as a gift. Carrying so many coins would be a hassle, so Ali wishes to convert the 368 pennies into a better format. Write a C program which converts the 368 pennies into a set of pennies, nickels, dimes, and quarters such that Ali has to carry the least amount of coins.
    - 1 quarter = 25 pennies
    - 1 dime = 10 pennies
    - 1 nickel = 5 pennies
2. Write a C program to find the euclidean distance between 2 points (x1, x2) and (y1, y2).

$$\sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$$

3. Write a C program to calculate dot product of 2 vectors (A,B) where:
    - A = (5,2,-3), B = (-4,9,2)
    - Angle between A and B is 53 degrees

    Implement it using this formula:

We can calculate the Dot Product of two vectors this way:



$$\mathbf{a} \cdot \mathbf{b} = |\mathbf{a}| \times |\mathbf{b}| \times \cos(\theta)$$

Where:
|**a**| is the magnitude (length) of vector **a**
|**b**| is the magnitude (length) of vector **b**
θ is the angle between **a** and **b**

For a three-dimensional vector $\mathbf{a} = (a_1, a_2, a_3)$, the formula for its magnitude is

$$\|\mathbf{a}\| = \sqrt{a_1^2 + a_2^2 + a_3^2}.$$

4. Write a C program to take a number as input and print 1 if the number is a power of 10, and 0 if it is not. (You cannot use IF condition or loops).
5. Write a C program to take a positive number as input and multiply it by 4 using only bitwise operators. (No loops allowed either).
6. Write a C program to take a positive number as input and multiply it by 13 without using the * operator. (No loops allowed either).