5) Hi this is Swapnila! I am a Student Success Coach and will be explaining some practice problems from the MA005 Calculus course. Today we will review an assigned problem from Unit 1. In the “Homework Assessment” you were asked to solve this problem:

Approximate the area of the leaf in Fig. 4.

![Fig. 4](image-url)

Approach this problem as follows:

The area can be calculated by using the formula of area of squares.

1. Place the leaf on the graph paper having each square as 1 sq. cm
2. Count the number of squares that are completely covered, and find the area of all those squares.
3. Count the number of squares that are exactly half covered, and find the area of all those squares.
4. Count the number of squares that are more than half covered, and find the area of all those squares.
5. Ignore the squares that are less than half covered.
6. Perform the arithmetic on each of the above steps.

**Step 1:** Place the leaf on the graph paper having each square as 1 sq. cm
Step 2: Mark each completely covered square by red color, and count the total number of squares.

There is only one completely covered square.
The number of squares that are completely covered = 1
Multiply the number of squares by area of each square.
The area of completely covered square = 1 * 1 = 1 sq. cm

Step 3: Mark each exactly half covered square by blue color, and count the total number of squares.
There is no square that is exactly half covered.
The number of squares that are exactly half covered = 0
Multiply the number of exactly covered squares by half of the area of each square.
i.e., area of exactly half covered squares = 0 * 0.5 sq. cm = 0

**Step 4:** Mark each more than half covered square by yellow color, and count the total number of squares.

There are eight squares covered more than half.
The number of squares covered more than half = 8
Multiply the number of squares covered more than half by the area of each square.
The area of squares covered more than half = 8 * 1 sq. cm = 8 sq. cm
Step 5: Ignore the squares that are less than half covered.

Step 6: The approximate area = sum of the areas of step 1, step 2, step 3, and step 4.

The approximate area of the leaf = 1 sq. cm + 0 sq. cm + 8 sq. cm = 9 sq. cm.

Conclusion:

The approximate area of the leaf is 9 sq. cm.

Please let me know if you have any question on this problem, or on this topic generally. I will be here in the forum for the next hour.