Sure, here's a step-by-step process for using the trapezoidal rule to approximate the definite integral of a function on a given interval:

Step 1: Determine the interval of integration [a, b] and the function f(x) to be integrated.

Step 2: Choose the number of subintervals, n, into which the interval [a, b] will be divided. The larger the value of n, the more accurate the approximation will be.

Step 3: Determine the width of each subinterval, h, using the formula h = (b-a)/n.

Step 4: Evaluate the function f(x) at each of the endpoints of the subintervals and multiply each value by 1/2.

Step 5: Evaluate the function f(x) at each of the interior points of the subintervals and sum these values.

Step 6: Multiply the sum obtained in Step 5 by h.

Step 7: Add the results obtained in Steps 4 and 6 to obtain the final approximation of the definite integral.

Here's an example of using the trapezoidal rule to approximate the definite integral of the function f(x) = x^2 on the interval [0, 2] using n = 4 subintervals:

Step 1: Interval and Function

The interval is [0, 2] and the function is f(x) = x^2.

Step 2: Number of subintervals

We are given that n = 4 subintervals.

Step 3: Width of subintervals

The width of each subinterval is $h = (b-a)/n = (2-0)/4 = 0.5$.

Step 4: Evaluate $f(x)$ at the endpoints

$f(0) = 0^2 = 0$, so we have $f(0) * 1/2 = 0$.

$f(0.5) = (0.5)^2 = 0.25$, so we have $f(0.5) * 1/2 = 0.125$.

$f(1) = 1^2 = 1$, so we have $f(1) * 1/2 = 0.5$.

$f(1.5) = (1.5)^2 = 2.25$, so we have $f(1.5) * 1/2 = 1.125$.

$f(2) = 2^2 = 4$, so we have $f(2) * 1/2 = 2$.

Step 5: Evaluate $f(x)$ at interior points and sum

We need to evaluate $f(x)$ at $x = 0.5$, 1, and 1.5 and sum these values:

$f(0.5) = 0.25$.

$f(1) = 1$.

$f(1.5) = 2.25$.

Summing these values, we get $0.25 + 1 + 2.25 = 3.5$.

Step 6: Multiply sum by h

We multiply the sum obtained in Step 5 by the width of the subintervals:

$3.5 * 0.5 = 1.75$.

Step 7: Add results from Steps 4 and 6

Finally, we add the results obtained in Steps 4 and 6 to obtain the final approximation of the definite integral:

$0 + 0.125 + 0.5 + 1.125 + 2 + 1.75 = 5.5$.

Therefore, the trapezoidal rule approximates the definite integral of $f(x) = x^2$ on the interval [0, 2]