

# Simpsons Rule - 3

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Select LIST mode from the main menu by using the arrow keys to highlight the LIST icon or pressing 4.



**Note:** Area =  $\frac{1}{3}h[y_0 + 2y_1 + 4y_2 + 2y_3 + \dots + 4y_{n-2} + 2y_{n-1} + y_n]$   
 Where  $h = \frac{x_n - x_0}{n}$

The number of steps for using Simpsons Rule has to be even.

**Example:** Calculate the area bounded by the following data.

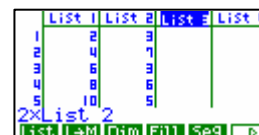
X	2	4	6	8	10	12	
Y	3	7	3	6	5	7	

**Answer:** Enter LIST mode and enter in the X values in List 1 space and in the Y values in List 2 space.



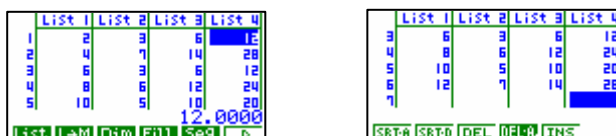
Move the cursor to 'sit' on top of the List 3 space as indicated in the screensnap.

Then press **OPTN F1** then type **2 x** then press **F1 2** to get **2xList 2** on the screen, then press **EXE**



Move the cursor to 'sit' on top of the List 4 space as indicated in the screensnap.

Then press **OPTN F1** then type **2 x** then press **F1 2** to get **4xList 2** on the screen, then press **EXE**



Reading

off the required values from List 2 only:

$$\begin{aligned} \text{Area} &= ? \times 2 \times [3 + 4 \times 7 + 2 \times 3 + 4 \times 6 + 2 \times 5 + 7] \\ &= ? [3 + 28 + 6 + 24 + 10 + 7] \\ &= ? [78] \\ &= 26 \text{ sq units} \end{aligned}$$

**OR** reading off the required values from **List 2, List 3 and List 4:**

$$\begin{aligned}\text{Area} &= ? [3 + 28 + 6 + 24 + 10 + 7] \\ &= ? [78] \\ &= \mathbf{26 \text{ sq units}}\end{aligned}$$

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