

Your goal is to know why you are doing what you are doing at each step of the way to the solution. Generally, writing down your work is essential to this task.

For each of the following functions $f(x)$ find the signed area between the graph of $f(x)$ and the x -axis and between the given values of a and b .

1. $f(x) = 17$; $a = 0$, and $b = 100$
2. $f(x) = x^{3/2}$; $a = 1$, and $b = 4$
3. $f(x) = \sin(x)$; $a = -\pi/6$, and $b = \pi/3$
4. $f(x) = e^x + 1$; $a = 0$, and $b = 1$

Find the following areas.

5. $A_0^3(x^2 + 1)$
6. $A_0^1(e^x)$
7. $A_0^{100}(17)$
8. $A_1^2(\frac{2}{x})$

Compute the following values.

9. $\int_1^2 (4x^5 + 2x + 2) \, dx$
10. $\int_0^{100} (17) \, dx$
11. $\int_1^4 \frac{1}{x^2} - 3x + 1 \, dx$
12. $\int_{-1}^1 e^x \, dx$
13. $\int_1^3 \frac{1}{x} \, dx$

These would be answers-without-explanation, merely for the purpose of confirming that you ended up where you are supposed to, but not why. Moreover, any one of the answers could contain its own mistake (and thus be wrong). But it's something.

1. 1700.
2. $\frac{62}{5}$.
3. $\frac{\sqrt{3} - 1}{2}$.
4. e .
5. 12.
6. $e - 1$
7. 1700.
8. $2 \ln(2)$.
9. 47.
10. 1700.
11. 18.75.
12. $e - \frac{1}{e}$.
13. $\ln(3)$.