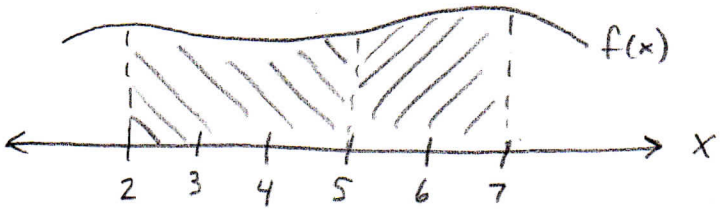
Homework Logical Flow Example

If $\int_2^7 2f(x)\,dx = 14$ and $\int_5^7 f(x)\,dx = 3$, what is $\int_2^5 f(x)\,dx$?

Picture:



Goal: $\int_2^5 f(x)\,dx$

Setup:

Givens: $\int_2^7 2f(x)\,dx = 14$ $\int_5^7 f(x)\,dx = 3$

Key Formula: $\int_2^7 f(x)\,dx = \int_2^5 f(x)\,dx + \int_5^7 f(x)\,dx$

Work:

$2\int_2^7 f(x)\,dx = 14$

$\int_2^7 f(x)\,dx = 7$

$7 = \int_2^5 f(x)\,dx + 3$

$\boxed{4 = \int_2^5 f(x)\,dx}$

Conclusion:

So the area under f(x) between $x = 2$ and $x = 5$ is 4.