you need to be able to finish these in less than a minute . . . ..

1. $\int x\,dx =$ $\frac{x^2}{2} + C$

2. $\int \sqrt[3]{x}\,dx =$ $\int x^{1/3}\,dx$ $\frac{3}{4}x^{\frac{4}{3}} + C$

3. $\int \frac{1}{x}\,dx =$ $\ln|x| + C$

4. $\int \frac{1}{\sqrt{x}}\,dx =$ $\int x^{-1/2}\,dx$ $2x^{1/2} + C$

5. $\int \frac{1}{1+x^2}\,dx =$ $\tan^{-1}x + C$

6. $\int \frac{1}{\sqrt{1-x^2}}\,dx =$ $\sin^{-1}x + C$

7. $\int \frac{1}{x\sqrt{x^2-1}}\,dx =$ $\sec^{-1}x + C$

8. $\int e^x\,dx =$ $e^x + C$

9. $\int \sin x\,dx =$ $-\cos x + C$

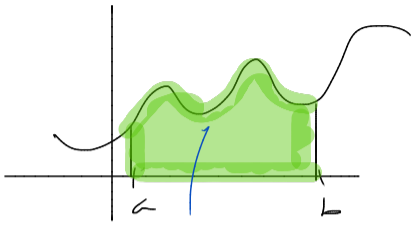
10. $\int \cos x\,dx =$ $\sin x + C$

11. $\int \sec^2 x\,dx =$ $\tan x + C$

12. $\int \sec x \tan x\,dx =$ $\sec x + C$

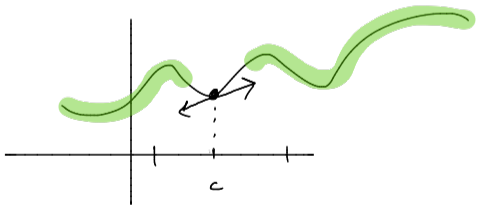
Why does integration seem harder than differentiation?

- Integration is a "global" problem.



infinite sum

- Differentiation is a "local" problem



Note: If your function is given by discrete data — the opposite occurs.