

A. Review derivative and antiderivative rules for trig functions:

Function	Derivative	Antiderivative
$y=\sin(x)$	$y' =$	$\int \sin(x) dx =$
$y=\cos(x)$	$y' =$	$\int \cos(x) dx =$
$y=\tan(x)$	$y' =$	$\int \tan(x) dx =$
$y=\cot(x)$	$y' =$	$\int \cot(x) dx =$
$y=\sec(x)$	$y' =$	$\int \sec(x) dx =$
$y=\csc(x)$	$y' =$	$\int \csc(x) dx =$

B. Review general techniques for integrating rational functions.

1. $\int \frac{\text{constant}}{\text{linear}} dx$ $\int \frac{3}{2x-5} dx$	2. $\int \frac{\text{linear}}{\text{quadratic}} dx$ $\int \frac{2x+5}{x^2+5x-3} dx$
3. $\int \frac{\text{constant}}{\text{quadratic}} dx$ $\int \frac{6}{x^2+4x+13} dx$	4. $\int \frac{\text{quadratic}}{\text{linear}} dx$ $\int \frac{x^2}{x+2} dx$ or ANY time that the degree of the numerator is \geq the degree of the denominator: divide first

C. Review taking antiderivatives.

5. $\int \frac{e^x dx}{18+9e^{2x}}$	6. $\int \frac{3}{\sqrt{x}} dx$
7. $\int \frac{\sin x}{\cos^2 x} dx$	8. $\int \frac{(\ln x)^4}{x} dx$
9. $\int (2x+1)\sqrt{5-x} dx$	10. $\int \frac{x+3}{x^2-4x+12} dx$

11. $\int 4x \cdot 3^{x^2-1} dx$

12. $\int \frac{5}{3e^x - 2} dx$

13. $\int \frac{e^x}{e^{2x} + 4} dx$

14. $\int \frac{e^{2x}}{\sqrt{e^{2x} + 7}} dx$