$y' = nx^{n-1}$ *Power Function:* $y = x^n$

nstant Multiple Function: $y = cf(x)$ $y' = cf'(x)$ *Co*

$y' = \dfrac{f'(x)g(x) - f(x)g'(x)}{(g(x))^2}$ *Quotient of Functions:* $y = \dfrac{f(}{g(}$

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$x = f^{-1}(y)$ dx

Natural Exponential Function: $y = e^x$ $y' = e^x$

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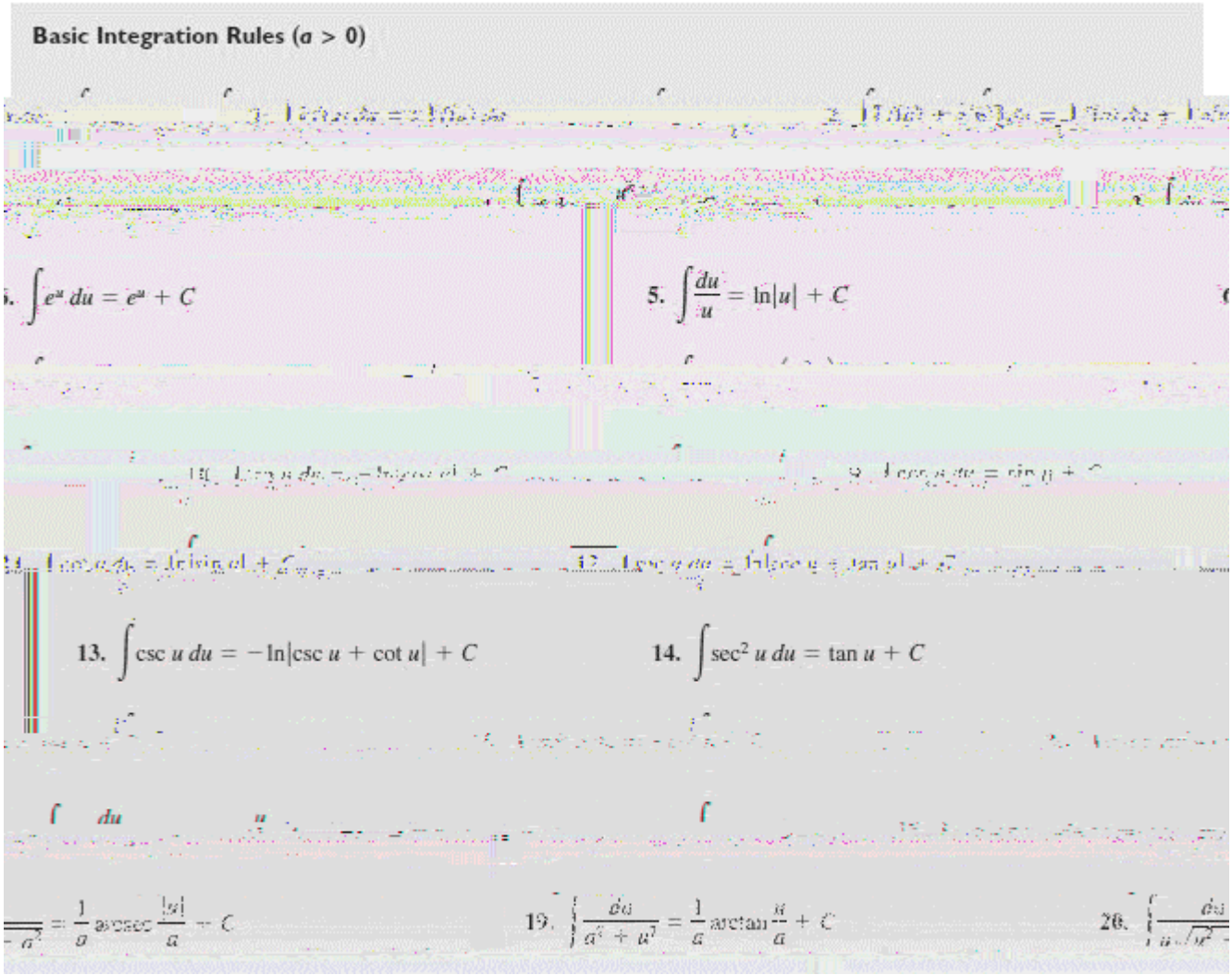
CALIFORNIA STATE

Basic Integration Rules ($a > 0$)



$$\int e^u\,du = e^u + C$$

$$\int \frac{du}{u} = \ln|u| + C$$

$$\int \csc u\,du = -\ln|\csc u + \cot u| + C$$

$$\int \sec^2 u\,du = \tan u + C$$

$$\int \frac{du}{a^2 + u^2} = \frac{1}{a}\arctan\frac{u}{a} + C$$

References - [Summary of Rules of Differentiation](#).