

## Derivative Rules:

$$50. \frac{d}{dx}(c) = 0$$

$$51. \frac{d}{dx}(c \cdot x) = c \cdot x'$$

$$52. \frac{d}{dx}(x^n) = n x^{n-1}$$

$$53. \frac{d}{dx}(u+v) = u' + v'$$

$$54. \frac{d}{dx}(u \cdot v) = uv' + u'v$$

$$55. \frac{d}{dx}\left(\frac{u}{v}\right) = \frac{v u' - u v'}{v^2}$$

$$56. \frac{d}{dx}(\ln x) = \frac{1}{x}$$

$$57. \frac{d}{dx}(\log_a x) = \frac{1}{x \ln a}$$

$$58. \frac{d}{dx}(e^x) = e^x$$

$$59. \frac{d}{dx}(a^x) = a^x \ln a$$

$$60. \text{Chain rule: } \frac{d}{dx} f(g(x)) = f'(g(x)) \cdot g'$$

$$61. \frac{d}{dx}(\sin x) = \cos x$$

$$62. \frac{d}{dx}(\cos x) = -\sin x$$

$$63. \frac{d}{dx}(\tan x) = \sec^2 x$$

$$64. \frac{d}{dx}(\cot x) = -\csc^2 x$$

$$65. \frac{d}{dx}(\sec x) = \sec x \tan x$$

$$66. \frac{d}{dx}(\csc x) = -\csc x \cot x$$

$$67. \frac{d}{dx}(\sin^{-1} x) = \frac{1}{\sqrt{1-x^2}}$$

$$68. \frac{d}{dx}(\cos^{-1} x) = \frac{-1}{\sqrt{1-x^2}}$$

$$69. \frac{d}{dx}(\tan^{-1} x) = \frac{1}{1+x^2}$$

$$70. \frac{d}{dx}(\cot^{-1} x) = \frac{-1}{1+x^2}$$

$$71. \frac{d}{dx}(\sec^{-1} x) = \frac{1}{|x| \sqrt{x^2-1}}$$

$$72. \frac{d}{dx}(\csc^{-1} x) = \frac{-1}{|x| \sqrt{x^2-1}}$$

## Integral Rules (Indefinite form):

$$73. \int (f(x) \pm g(x)) \cdot dx = \int f(x) dx \pm \int g(x) dx$$

$$74. \int c \cdot f(x) \cdot dx = c \int f(x) dx$$

$$75. \int x^n \cdot dx = \frac{1}{n+1} x^{n+1} + C$$

$$76. \int e^x \cdot dx = e^x + C$$

$$77. \int a^x \cdot dx = \frac{1}{\ln a} a^x + C$$

$$78. \int \frac{1}{x} \cdot dx = \ln|x| + C$$

$$79. \int \sin x \cdot dx = -\cos x + C$$

$$80. \int \cos x \cdot dx = \sin x + C$$

$$81. \int \sec^2 x \cdot dx = \tan x + C$$

$$82. \int \csc^2 x \cdot dx = -\cot x + C$$

$$83. \int \sec x \cdot \tan x \cdot dx = \sec x + C$$

$$84. \int \csc x \cdot \cot x \cdot dx = -\csc x + C$$

$$85. \int \tan x \cdot dx = \ln|\sec x| + C$$

$$86. \int \cot x \cdot dx = \ln|\sin x| + C$$

$$87. \int \sec x \cdot dx = \ln|\sec x + \tan x| + C$$

$$88. \int \csc x \cdot dx = -\ln|\csc x + \cot x| + C$$

$$89. \int \frac{dx}{1+x^2} = \tan^{-1} x + C$$

$$90. \int \frac{dx}{\sqrt{1-x^2}} = \sin^{-1} x + C$$

$$91. \int \frac{dx}{x\sqrt{x^2-1}} = \sec^{-1} x + C$$