

1 Class 1 - Ada Lovelace - Derivatives and anti-derivatives

$$\int \frac{1}{2} dx = \quad (1) \quad \frac{d}{dx} \left(\frac{3^x a}{b} \right) = \quad (19)$$

$$\frac{d}{dt} \pi^{-5t} = \quad (2) \quad \frac{d}{dx} \left(\frac{4}{3} 3^{\frac{kx}{3}} \right) = \quad (20)$$

$$\frac{d}{dt} \left(\frac{t^2}{4} \right) = \quad (3) \quad \int \frac{3t^n}{b} dt = \quad (21)$$

$$\frac{d}{dt} \left(\frac{5t^n}{b} \right) = \quad (4) \quad \frac{d}{dx} \left(\frac{4x^{\frac{3}{2}}}{5} \right) = \quad (22)$$

$$\frac{d}{dt} \left(5\pi^{\frac{3t}{2}} \right) = \quad (5) \quad \frac{d}{dt} \left(\frac{t}{3} \right) = \quad (23)$$

$$\int \frac{a}{2} e^{-x} dx = \quad (6) \quad \int \frac{1}{2} dx = \quad (24)$$

$$\frac{d}{dt} \left(\frac{e^{\frac{2t}{3}}}{b} \right) = \quad (7) \quad \frac{d}{dt} \left(\frac{t^{\frac{3}{2}}}{2} \right) = \quad (25)$$

$$\int 2\pi^{-kt} dt = \quad (8) \quad \frac{d}{dt} \left(\frac{5}{4} 4^{kt} \right) = \quad (26)$$

$$\int \frac{4t}{5} dt = \quad (9) \quad \frac{d}{dx} \left(\frac{2}{x^4} \right) = \quad (27)$$

$$\int \frac{1}{4} dx = \quad (10) \quad \frac{d}{dt} (2 \cdot 3^{2t}) = \quad (28)$$

$$\int \frac{2t^3}{b} dt = \quad (11) \quad \frac{d}{dt} \left(2\pi^{-\frac{t}{2}} \right) = \quad (29)$$

$$\frac{d}{dt} \frac{1}{2} = \quad (12) \quad \int \frac{2x}{3} dx = \quad (30)$$

$$\frac{d}{dt} (4t) = \quad (13) \quad \int 2^{3x} dx = \quad (31)$$

$$\frac{d}{dx} (3e^{\frac{x}{3}}) = \quad (14) \quad \int \frac{5}{4} t^{-n} dt = \quad (32)$$

$$\frac{d}{dx} \left(\frac{3}{b} 5^{5x} \right) = \quad (15) \quad \frac{d}{dt} \left(\frac{5}{b\sqrt{t}} \right) = \quad (33)$$

$$\int \frac{2}{3} 4^{\frac{4t}{3}} dt = \quad (16) \quad \frac{d}{dx} \left(\frac{3}{5} 2^{\frac{x}{2}} \right) = \quad (34)$$

$$\frac{d}{dt} \left(\frac{a}{3} \right) = \quad (17) \quad \int \frac{a}{4t^4} dt = \quad (35)$$

$$\frac{d}{dx} \frac{1}{5} = \quad (18) \quad \int 3 dx = \quad (36)$$

$$\int \frac{4}{b} 4^{5t} dt = \quad (37)$$

$$\int \frac{5}{3} 3^x dx = \quad (38)$$

$$\int \frac{5}{3} e^{2t} dt = \quad (39)$$

$$\frac{d}{dt} \left(\frac{2^t}{b} \right) = \quad (40)$$

$$\frac{d}{dt} \left(\frac{1}{3t} \right) = \quad (41)$$

$$\frac{d}{dt} \left(\frac{2}{5} e^{2t} \right) = \quad (42)$$

$$\frac{d}{dx} \left(\frac{3x^3}{4} \right) = \quad (43)$$

$$\int \frac{a}{t^2} dt = \quad (44)$$

$$\int \frac{3\pi^x}{4} dx = \quad (45)$$

$$\frac{d}{dx} \left(\frac{5}{2} 3^{\frac{x}{2}} \right) = \quad (46)$$

$$\int \frac{2\pi^x}{b} dx = \quad (47)$$

$$\frac{d}{dt} 3^{-kt} = \quad (48)$$

$$\int \frac{4}{5} 2^{5x} dx = \quad (49)$$

$$\frac{d}{dt} \frac{3}{4} = \quad (50)$$

$$\int x^2 dx = \quad (51)$$

$$\int \frac{5}{4} 3^{2t} dt = \quad (52)$$

$$\frac{d}{dt} \frac{2}{3} = \quad (53)$$

$$\frac{d}{dt} \left(\frac{t^{\frac{n}{3}}}{3} \right) = \quad (54)$$

$$\int \frac{1}{4} 3^{-5x} dx = \quad (55)$$

$$\int 3t^2 dt = \quad (56)$$

$$\int \frac{2}{bt} dt = \quad (57)$$

$$\frac{d}{dx} \left(\frac{x^4}{2} \right) = \quad (58)$$

$$\int ax^n dx = \quad (59)$$

$$\frac{d}{dt} \left(\frac{3^{-\frac{t}{2}}}{b} \right) = \quad (60)$$

$$\frac{d}{dx} \left(\frac{3}{5} 5^{-\frac{4x}{3}} \right) = \quad (61)$$

$$\int \frac{4x^{\frac{4}{3}}}{3} dx = \quad (62)$$

$$\int \frac{x}{2} dx = \quad (63)$$

$$\int 4t^4 dt = \quad (64)$$

$$\int \frac{\pi^t a}{3} dt = \quad (65)$$

$$\int \frac{2t^{\frac{2}{3}}}{5} dt = \quad (66)$$

$$\int t^{\frac{2}{3}} dt = \quad (67)$$

$$\int 2 \cdot 5^{kx} dx = \quad (68)$$

$$\frac{d}{dx} x^2 = \quad (69)$$

$$\int \frac{5^{4t}}{5} dt = \quad (70)$$

$$\int \frac{a}{5t^4} dt = \quad (71)$$

$$\frac{d}{dt} \left(\frac{3^t}{3} \right) = \quad (72)$$

$$\frac{d}{dx} \left(\frac{4}{b} 3^{3x} \right) = \quad (73)$$

$$\frac{d}{dt} \left(\frac{3t^2}{4} \right) = \quad (74)$$

$$\frac{d}{dt} \left(\frac{at^2}{b} \right) = \quad (75)$$

2 Class 1 - Grace Hopper - Derivatives and anti-derivatives

$$\int \frac{e^{\frac{4x}{3}}}{2} dx = \quad (1) \quad \int \frac{ax^n}{5} dx = \quad (19)$$

$$\int 2\pi^t dt = \quad (2) \quad \int \frac{3x}{5} dx = \quad (20)$$

$$\int \frac{x^4}{2} dx = \quad (3) \quad \frac{d}{dx} \left(\frac{3^{2x}}{2} \right) = \quad (21)$$

$$\frac{d}{dx} \left(\frac{ax^n}{4} \right) = \quad (4) \quad \int 4 \cdot 4^{kx} dx = \quad (22)$$

$$\frac{d}{dt} \frac{1}{t^3} = \quad (5) \quad \int \frac{3t^{\frac{n}{2}}}{4} dt = \quad (23)$$

$$\int 5e^{3x} dx = \quad (6) \quad \int \frac{e^{4x}}{b} dx = \quad (24)$$

$$\frac{d}{dx} \left(\frac{3}{5} \pi^{-kx} \right) = \quad (7) \quad \frac{d}{dx} \left(\frac{5x^2}{b} \right) = \quad (25)$$

$$\frac{d}{dt} \left(\frac{\pi^{2t}}{2} \right) = \quad (8) \quad \frac{d}{dx} \left(\frac{3x^{\frac{4}{3}}}{2} \right) = \quad (26)$$

$$\frac{d}{dt} (3t) = \quad (9) \quad \frac{d}{dx} \left(4 \cdot 4^{\frac{kx}{3}} \right) = \quad (27)$$

$$\int \frac{x^{-n}}{4} dx = \quad (10) \quad \int \frac{2}{5} x^{-n} dx = \quad (28)$$

$$\int \pi^{\frac{4x}{3}} dx = \quad (11) \quad \frac{d}{dt} \left(\frac{t^2}{2} \right) = \quad (29)$$

$$\int \frac{3}{bt} dt = \quad (12) \quad \int \frac{4x}{5} dx = \quad (30)$$

$$\int \frac{5}{4} 4^{\frac{5x}{2}} dx = \quad (13) \quad \frac{d}{dt} \left(\frac{3t^3}{b} \right) = \quad (31)$$

$$\frac{d}{dx} \left(\frac{2}{5} \pi^{5x} \right) = \quad (14) \quad \frac{d}{dx} \left(\frac{a}{2} 3^{3x} \right) = \quad (32)$$

$$\int \frac{a}{4} 5^{-x} dx = \quad (15) \quad \int t^{-n} dt = \quad (33)$$

$$\frac{d}{dt} \left(5^{\frac{kt}{3}} a \right) = \quad (16) \quad \frac{d}{dt} 5^{3t} = \quad (34)$$

$$\frac{d}{dx} \left(\frac{ax^3}{5} \right) = \quad (17) \quad \frac{d}{dx} 2^{3x} = \quad (35)$$

$$\frac{d}{dt} \left(\frac{5}{b} \pi^{\frac{5t}{2}} \right) = \quad (18) \quad \int 3t^4 dt = \quad (36)$$

$$\int \frac{3}{4} 5^{3t} dt = \quad (37)$$

$$\int \frac{4}{3} dt = \quad (38)$$

$$\frac{d}{dt} \left(\frac{2}{5\sqrt[3]{t}} \right) = \quad (39)$$

$$\int \frac{5}{4} dx = \quad (40)$$

$$\frac{d}{dt} \left(\frac{a}{5} 4^{\frac{5t}{3}} \right) = \quad (41)$$

$$\frac{d}{dx} (2\pi^x) = \quad (42)$$

$$\frac{d}{dt} \frac{4}{3} = \quad (43)$$

$$\frac{d}{dx} \left(\frac{3}{2x^2} \right) = \quad (44)$$

$$\frac{d}{dx} \left(\frac{a}{b} e^{-4x} \right) = \quad (45)$$

$$\int \frac{2^{\frac{2t}{3}}}{4} dt = \quad (46)$$

$$\frac{d}{dt} \left(\frac{a}{b} 3^{3t} \right) = \quad (47)$$

$$\frac{d}{dt} \left(\frac{3t^2}{b} \right) = \quad (48)$$

$$\frac{d}{dt} (2e^{kt}) = \quad (49)$$

$$\frac{d}{dt} \left(\frac{at^2}{3} \right) = \quad (50)$$

$$\int \frac{a}{4} \pi^{kt} dt = \quad (51)$$

$$\int \frac{2\pi^x}{b} dx = \quad (52)$$

$$\frac{d}{dx} \left(2 \cdot 3^{\frac{3x}{2}} \right) = \quad (53)$$

$$\frac{d}{dt} \left(\frac{4^{-t}}{2} \right) = \quad (54)$$

$$\int \frac{5}{2} dt = \quad (55)$$

$$\frac{d}{dx} \left(\frac{3}{b} e^{4x} \right) = \quad (56)$$

$$\frac{d}{dx} \left(\frac{5}{b} 2^{2x} \right) = \quad (57)$$

$$\frac{d}{dx} \left(\frac{a}{5} \right) = \quad (58)$$

$$\frac{d}{dt} \pi^{-4t} = \quad (59)$$

$$\int \frac{5}{b} 5^{-2x} dx = \quad (60)$$

$$\int \frac{3}{5} 5^{\frac{t}{2}} dt = \quad (61)$$

$$\frac{d}{dx} \left(\frac{2}{3} 5^{5x} \right) = \quad (62)$$

$$\frac{d}{dx} \left(\frac{3x^2}{5} \right) = \quad (63)$$

$$\int \frac{ax^2}{2} dx = \quad (64)$$

$$\int \frac{3}{4} dx = \quad (65)$$

$$\int \frac{ax^2}{5} dx = \quad (66)$$

$$\int 2^{4t} dt = \quad (67)$$

$$\frac{d}{dt} \left(\frac{2}{b} e^{-3t} \right) = \quad (68)$$

$$\int \frac{e^{2x}}{3} dx = \quad (69)$$

$$\frac{d}{dt} \left(\frac{a}{b} \right) = \quad (70)$$

$$\frac{d}{dt} \left(\frac{5}{b} \pi^{\frac{2t}{3}} \right) = \quad (71)$$

$$\int \frac{5}{3} e^{-5x} dx = \quad (72)$$

$$\frac{d}{dx} \frac{1}{\sqrt{x}} = \quad (73)$$

$$\frac{d}{dx} (2x) = \quad (74)$$

$$\int t^3 dt = \quad (75)$$

3 Class 1 - Jean Jennings Bartik - Derivatives and anti-derivatives

$$\begin{array}{ll} \frac{d}{dt} \left(\frac{4t^{\frac{3}{2}}}{3} \right) = & \int 2 \cdot 2^t dt = \quad (19) \\ (1) & \frac{d}{dx} \left(\frac{a}{4} 3^{-x} \right) = \quad (20) \\ \frac{d}{dx} \left(\frac{x}{3} \right) = & \frac{d}{dt} \left(\frac{a}{2} \right) = \quad (21) \\ (2) & \int \frac{x}{3} dx = \quad (22) \\ \frac{d}{dt} \left(\frac{3}{5} 3^{4t} \right) = & \frac{d}{dt} t^2 = \quad (23) \\ (3) & \frac{d}{dt} \left(\frac{at}{5} \right) = \quad (24) \\ \int \frac{4^x a}{b} dx = & \frac{d}{dx} x = \quad (25) \\ (4) & \frac{d}{dx} x^3 = \quad (26) \\ \int \frac{5}{b} 5^{-2x} dx = & \frac{d}{dx} \left(\frac{5}{2} 5^{-kx} \right) = \quad (27) \\ (5) & \frac{d}{dt} \frac{1}{t^4} = \quad (28) \\ \frac{d}{dt} \left(\frac{5}{b} \right) = & \int 2t^2 dt = \quad (29) \\ (6) & \int \frac{2}{3} 2^{kt} dt = \quad (30) \\ \int \frac{t}{2} dt = & \int \frac{5^{\frac{3t}{2}}}{2} dt = \quad (31) \\ (7) & \int \frac{e^{2t}}{2} dt = \quad (32) \\ \frac{d}{dt} \left(\frac{2^{2t}}{2} \right) = & \int 3^{-kt} dt = \quad (33) \\ (8) & \int \frac{ax^3}{3} dx = \quad (34) \\ \int \frac{3}{b} 5^{4t} dt = & \frac{d}{dx} x = \quad (35) \\ (9) & \frac{d}{dt} \left(\frac{5t^n}{b} \right) = \quad (36) \\ \int 1 dx = & \int \frac{3}{4} 3^{2x} dx = \quad (37) \\ (10) & \\ \frac{d}{dx} (4^x a) = & \\ (11) & \\ \int 4x^4 dx = & \\ (12) & \\ \int x^3 dx = & \\ (13) & \\ \frac{d}{dt} \left(\frac{5t^2}{4} \right) = & \\ (14) & \\ \int \frac{\pi^{kt}}{2} dt = & \\ (15) & \\ \int \frac{3}{4} 2^{5x} dx = & \\ (16) & \\ \int t dt = & \\ (17) & \\ \int 1 dx = & \\ (18) & \end{array}$$

$$\int \frac{5t^{\frac{3}{2}}}{4} dt = \quad (38) \quad \int \frac{2}{b} 4^{4x} dx = \quad (58)$$

$$\int \frac{4^{\frac{x}{2}}}{b} dx = \quad (39) \quad \frac{d}{dt} \left(\frac{a}{2} \pi^{4t} \right) = \quad (59)$$

$$\int \frac{ax^2}{4} dx = \quad (40) \quad \int 3^{3t} a dt = \quad (60)$$

$$\frac{d}{dx} (2x^3) = \quad (41) \quad \int \frac{a}{4} dx = \quad (61)$$

$$\frac{d}{dt} \left(\frac{1}{2} 4^{-5t} \right) = \quad (42) \quad \frac{d}{dx} \left(\frac{5}{2} 3^{2x} \right) = \quad (62)$$

$$\int \frac{\pi^t}{3} dt = \quad (43) \quad \frac{d}{dx} \frac{1}{x} = \quad (63)$$

$$\frac{d}{dt} \left(\frac{5\pi^t}{2} \right) = \quad (44) \quad \frac{d}{dx} 1 = \quad (64)$$

$$\int 3^{2t} dt = \quad (45) \quad \frac{d}{dx} \left(\frac{x^2}{3} \right) = \quad (65)$$

$$\int \frac{1}{t^{\frac{2}{3}}} dt = \quad (46) \quad \frac{d}{dx} \left(\frac{3^{4x}}{2} \right) = \quad (66)$$

$$\int 2^{2t} a dt = \quad (47) \quad \int \frac{5}{3} dx = \quad (67)$$

$$\frac{d}{dx} \left(\frac{5}{3} 3^{5x} \right) = \quad (48) \quad \int \frac{ax^{\frac{3}{2}}}{4} dx = \quad (68)$$

$$\int t dt = \quad (49) \quad \int \frac{5t^n}{b} dt = \quad (69)$$

$$\int \frac{2\sqrt{x}}{5} dx = \quad (50) \quad \int 4x^3 dx = \quad (70)$$

$$\int \frac{4t^3}{3} dt = \quad (51) \quad \frac{d}{dt} (3t) = \quad (71)$$

$$\frac{d}{dt} \left(\frac{at^3}{5} \right) = \quad (52) \quad \frac{d}{dt} \left(\frac{5t^4}{3} \right) = \quad (72)$$

$$\int \frac{2}{b} e^{2t} dt = \quad (53) \quad \int \frac{a}{b} 3^{2t} dt = \quad (73)$$

$$\frac{d}{dt} (3^{5t} a) = \quad (54) \quad \int \frac{1}{3} dx = \quad (74)$$

$$\int t^{\frac{n}{2}} dt = \quad (55) \quad \int 2x^{-n} dx = \quad (75)$$

$$\frac{d}{dt} (5t^2) = \quad (56)$$

$$\int \frac{a}{3} \pi^{5x} dx = \quad (57)$$