

$$(Q1.) \frac{d}{dx}(ax^2 + bx + c)$$

$$(A) 2ax + b$$

$$(B) 2ax + b + c$$

$$(C) 2a + b + c$$

$$(Q2.) \frac{d}{dx} \left(\frac{\sin x}{1 + \cos x} \right)$$

$$(A) \frac{\cos x}{(1 + \cos x)^2}$$

$$(B) \frac{1}{1 + \cos x}$$

$$(C) \frac{\sin x}{(1 + \cos x)^2}$$

$$(Q3.) \frac{d}{dx} \left(\frac{1 + \cos x}{\sin x} \right)$$

$$(A) -\csc x \cot x + \sec^2 x$$

$$(B) \cos x + \cot x$$

$$(C) -\csc x \cot x - \csc^2 x$$

$$(Q4.) \frac{d}{dx}(\sqrt{3x+1})$$

$$(A) \frac{3}{2\sqrt{3x+1}}$$

$$(B) \frac{1}{2\sqrt{3x+1}}$$

$$(C) \frac{3}{\sqrt{3x+1}}$$

$$(Q5.) \frac{d}{dx}(\sin^3(x) + \sin(x^3))$$

$$(A) 3\sin^2 x + \cos(x^3)$$

$$(B) 3\sin^2 x \cos x + 3x^2 \cos(x^3)$$

$$(C) 3\sin^2 x + \cos(3x^2)$$

$$(Q6.) \frac{d}{dx} \left(\frac{1}{x^4} \right)$$

$$(A) \frac{-4}{x^5}$$

$$(B) \frac{1}{4x^3}$$

$$(C) \frac{-4}{x^5}$$

$$(Q7.) \frac{d}{dx}((1 + \cot x)^3)$$

$$(A) -3\csc^2 x (1 + \cot x)^2$$

$$(B) -3\csc^2 x (1 - \csc^2 x)^2$$

$$(C) 3(1 - \csc^2 x)^2$$

$$(Q8.) \frac{d}{dx} \left(x^2 (2x^3 + 1)^{10} \right)$$

$$(A) 2x(2x^3 + 1)^9 (2x^3 + 5x + 1)$$

$$(B) 2x(2x^3 + 1)^9 (32x^3 + 1)$$

$$(C) 120x^3 (2x^3 + 1)^9$$

$$(Q9.) \frac{d}{dx} \left(\frac{x}{(x^2 + 1)^2} \right)$$

$$(A) \frac{2x + 3}{(x^2 + 1)^4}$$

$$(B) \frac{1}{2(x + 1)}$$

$$(C) \frac{-3x^2 + 1}{(x^2 + 1)^3}$$

$$(Q10.) \frac{d}{dx} \left(\frac{20}{1+5e^{-2x}} \right)$$

$$(A) \frac{200e^{-2x}}{(1+5e^{-2x})^2}$$

$$(B) \frac{200}{1+5e^{-2x}}$$

$$(C) \frac{20e^{-2x}}{(1+5e^{-2x})^2}$$

$$(Q11.) \frac{d}{dx} (\sqrt{e^x} + e^{\sqrt{x}})$$

$$(A) \sqrt{e^x} + \sqrt{x}e^{\sqrt{x}}$$

$$(B) \frac{\sqrt{e^x}}{2} + \frac{e^{\sqrt{x}}}{2\sqrt{x}}$$

$$(C) \frac{1}{2\sqrt{e^x}} + \frac{e^{\sqrt{x}}}{2\sqrt{x}}$$

$$(Q12.) \frac{d}{dx} (\sec^3(2x))$$

$$(A) \sec^3(2x)\tan^2(2x)$$

$$(B) 3\sec^2(2x)\tan(2x)$$

$$(C) 6\sec^3(2x)\tan(2x)$$

$$(Q13.) \frac{d}{dx} \left(\frac{1}{2}\sec x \tan x + \frac{1}{2}\ln(\sec x + \tan x) \right)$$

$$(A) \sec^3 x$$

$$(B) 2\sec^2 x \tan x$$

$$(C) 3\sec^3 x \tan x$$

$$(Q14.) \frac{d}{dx} \left(\frac{xe^x}{1+e^x} \right)$$

$$(A) \frac{xe^x + e^x - e^{2x}}{(1+e^x)^2}$$

$$(B) \frac{xe^x + e^x + e^{2x}}{(1+e^x)^2}$$

$$(C) \frac{xe^x + e^x}{(1+e^x)^2}$$

$$(Q15.) \frac{d}{dx} (e^{4x} \cos(\frac{x}{2}))$$

$$(A) -2e^{4x} \sin(\frac{x}{2})$$

$$(B) -e^{4x} \sin(\frac{x}{2}) + e^{4x} \cos(\frac{x}{2})$$

$$(C) \frac{-1}{2}e^{4x} \sin(\frac{x}{2}) + 4e^{4x} \cos(\frac{x}{2})$$

$$(Q16.) \frac{d}{dx} \left(\frac{1}{\sqrt[4]{x^3-2}} \right)$$

$$(A) \frac{-3x^2}{4\sqrt[4]{(x^3-2)^5}}$$

$$(B) \frac{-4}{\sqrt[4]{(x^3-2)^5}}$$

$$(C) \frac{3x^2}{4\sqrt[5]{(x^3-2)^4}}$$

$$(Q17.) \frac{d}{dx} \left(\tan^{-1}(\sqrt{x^2-1}) \right)$$

$$(A) \frac{-1}{\sqrt{(x^2-1)^3}}$$

$$(B) \frac{1}{x\sqrt{x^2-1}}$$

$$(C) \frac{1}{x^2\sqrt{x^2-1}}$$

(Q18.) $\frac{d}{dx} \left(\frac{\ln x}{x^3} \right)$

(A) $\frac{3x^2 - \ln x}{x^6}$

(B) $\frac{1}{3x^3}$

(C) $\frac{1 - 3\ln x}{x^4}$

(Q19.) $\frac{d}{dx} (x^x)$

(A) $x^x(\ln x + 1)$

(B) $x^x(\ln x - 1)$

(C) $x^x(\ln x - x)$

(Q20.) Find $\frac{dy}{dx}$ for $x^3 + y^3 = 6xy$

(A) $\frac{x^2}{2x - y^2}$

(B) $\frac{x^2 - 2y}{2x - y^2}$

(C) $\frac{x^2 + y^2}{2x + 2y}$

(Q21.) Find $\frac{dy}{dx}$ for $y \sin y = x \sin x$

(A) $\frac{x \cos x}{y \cos y}$

(B) $\frac{\sin x - x \cos x}{\sin y - y \cos y}$

(C) $\frac{\sin x + x \cos x}{\sin y + y \cos y}$

(Q22.) Find $\frac{dy}{dx}$ for $\ln \left(\frac{x}{y} \right) = e^{xy^3}$

(A) $\frac{y - xy^4 e^{xy^3}}{x + 3x^2 y^3 e^{xy^3}}$

(B) $\frac{y - x^2 y^3 e^{xy^3}}{x + 3x^2 y^3 e^{xy^3}}$

(C) $\frac{y + 2x^2 y^3 e^{xy^3}}{x - 3x^2 y^3 e^{xy^3}}$

(Q23.) Find $\frac{dy}{dx}$ for $x = \sec y$

(A) $\frac{1}{x \sin x}$

(B) $\frac{1}{x \sqrt{x^2 - 1}}$

(C) $\frac{1}{\sqrt{x^2 - 1}}$

(Q24.) Find $\frac{dy}{dx}$ for $(x - y)^2 = \sin(x) + \sin(y)$

(A) $\frac{\cos x + \cos y}{2(x - y)}$

(B) $\frac{2x - 2y + \cos x}{2x - 2y - \cos y}$

(C) $\frac{2x - 2y - \cos x}{2x - 2y + \cos y}$

(Q25.) Find $\frac{dy}{dx}$ for $x^y = y^x$

(A) $\frac{xy \ln y - y^2}{xy \ln x - x^2}$

(B) $\frac{xy \ln y - 2y}{xy \ln x - 2x}$

(C) $\frac{xy \ln y + y^2}{xy \ln x + x^2}$

(Q26.) Find $\frac{dy}{dx}$ for $\tan^{-1}(x^2y) = x + y^3$

(A) $\frac{2xy + 1 - x^4y^2}{3y^2 + 3x^4y^2 - 2xy}$

(B) $\frac{2xy - 1 - x^4y^2}{3y^2 + 3x^4y^2 - x^2}$

(C) $\frac{3xy - 1 + x^4y^2}{2y^2 - 3x^4y^2 + x^2}$

(Q27.) Find $\frac{dy}{dx}$ for $\frac{x^2}{x^2 - y^2} = 3y$

(A) $\frac{-2xy}{3(x^2 - y^2)^2}$

(B) $\frac{2x}{2x - 2y}$

(C) $\frac{2x - 6xy}{3x^2 - 9y^2}$

(Q28.) Find $\frac{dy}{dx}$ for $e^{\frac{x}{y}} = x + y^2$

(A) $\frac{ye^{\frac{x}{y}} - y^2}{xe^{\frac{x}{y}} + 2y^3}$

(B) $\frac{ye^{\frac{x}{y}} - 3y^2}{xe^{\frac{x}{y}} + 2y^3}$

(C) $\frac{xe^{\frac{x}{y}} - 3y^2}{ye^{\frac{x}{y}} + 2y^3}$

(Q29.) Find $\frac{dy}{dx}$ for $(x^2 + y^2 - 1)^3 = y$

(A) $\frac{3x^2(x^2 + y^2 - 1)^2}{1 - 3y^2(x^2 + y^2 - 1)^2}$

(B) $\frac{6x(x^2 + y^2 - 1)^2}{1 - 6y(x^2 + y^2 - 1)^2}$

(C) $\frac{1 + 6x(x^2 + y^2 - 1)^2}{1 - 6y(x^2 + y^2 - 1)^2}$

(Q30.) Find $\frac{d^2y}{dx^2}$ for $9x^2 + y^2 = 9$

(A) $\frac{81x^2 - 2xy}{y^4}$

(B) $\frac{18x + 2y}{y^3}$

(C) $\frac{-81}{y^3}$

(Q31.) $\frac{d^2}{dx^2}(\frac{1}{9}\sec(3x))$

(A) $\sec^3(3x) + \sec(3x)\tan^2(3x)$

(B) $\sec^3(3x) + 3\tan^3(3x)$

(C) $\frac{1}{9}\sec(3x) + \tan^3(3x)$

(Q32.) $\frac{d^2}{dx^2}\left(\frac{x+1}{\sqrt{x}}\right)$

(A) $\frac{3-2x}{4x^{\frac{5}{2}}}$

(B) $\frac{3-x}{4x^{\frac{5}{2}}}$

(C) $\frac{3+x}{4x^{\frac{5}{2}}}$

(Q33.) $\frac{d^2}{dx^2}(\sin^{-1}(x^2))$

(A) $\frac{2-4x^4}{\sqrt{(1-x^4)^3}}$

(B) $\frac{2-2x^4}{\sqrt{(1-x^4)^3}}$

(C) $\frac{2+2x^4}{\sqrt{(1-x^4)^3}}$

$$(Q34.) \frac{d^2}{dx^2} \left(\frac{1}{1 + \cos x} \right)$$

$$(A) \frac{\cos x + \cos^2 x + 2 \sin^2 x}{(1 + \cos x)^3}$$

$$(B) \frac{\cos x + \cos^2 x - 2 \sin^2 x}{(1 + \cos x)^3}$$

$$(C) \frac{1 + \cos x + 2 \sin^2 x}{(1 + \cos x)^3}$$

$$(Q35.) \frac{d^2}{dx^2} (x \tan^{-1} x)$$

$$(A) \frac{2 \tan^{-1} x}{x^2 + 1}$$

$$(B) \frac{2}{(x^2 + 1)^2}$$

$$(C) \frac{-2 \tan^{-1} x}{(x^2 + 1)^2}$$

$$(Q36.) \frac{d^2}{dx^2} (x^4 \ln(x))$$

$$(A) 7x^2 + 12x^3 \ln x$$

$$(B) 7x + 12x^2 \ln x$$

$$(C) 7x^2 + 12x^2 \ln x$$

$$(Q37.) \frac{d^2}{dx^2} (e^{-x^2})$$

$$(A) (4x^2 - 2)e^{-x^2}$$

$$(B) -2e^{-x^2}$$

$$(C) (6x^2 - 2x)e^{-x^2}$$

$$(Q38.) \frac{d^2}{dx^2} (\cos(\ln x))$$

$$(A) \frac{\sin(\ln x) + \cos(\ln x)}{x^2}$$

$$(B) \frac{\sin(\ln x) - \cos(\ln x)}{x^2}$$

$$(C) \frac{\sin(\frac{1}{x}) - \cos(\frac{1}{x})}{x^2}$$

$$(Q39.) \frac{d^2}{dx^2} (\ln(\cos x))$$

$$(A) \csc x \sec x$$

$$(B) \sec x \tan x$$

$$(C) -\sec^2 x$$

$$(Q40.) \frac{d}{dx} (\sqrt{1-x^2} + x \sin^{-1} x)$$

$$(A) \sin^{-1} x$$

$$(B) \frac{1+x}{2\sqrt{1-x^2}}$$

$$(C) \cos^{-1} x$$

$$(Q41.) \frac{d}{dx} (x\sqrt{4-x^2})$$

$$(A) \frac{8-4x^2}{\sqrt{4-x^2}}$$

$$(B) \frac{4-2x^2}{\sqrt{4-x^2}}$$

$$(C) \frac{8+x-x^2}{2\sqrt{4-x^2}}$$

$$(Q42.) \frac{d}{dx} \left(\frac{\sqrt{x^2-1}}{x} \right)$$

$$(A) \frac{-1}{\sqrt{(x^2-1)^3}}$$

$$(B) \frac{1}{x\sqrt{x^2-1}}$$

$$(C) \frac{1}{x^2\sqrt{x^2-1}}$$

$$(Q43.) \frac{d}{dx} \left(\frac{x}{\sqrt{x^2-1}} \right)$$

$$(A) \frac{-1}{\sqrt{(x^2-1)^3}}$$

$$(B) \frac{1}{x\sqrt{x^2-1}}$$

$$(C) \frac{1}{x^2\sqrt{x^2-1}}$$

$$(Q44.) \frac{d}{dx} (\cos(\sin^{-1} x))$$

$$(A) \frac{-x}{1-x^2}$$

$$(B) \frac{-x}{\sqrt{1-x^2}}$$

$$(C) \frac{x}{\sqrt{1-x^2}}$$

$$(Q45.) \frac{d}{dx} (\ln(x^2+3x+5))$$

$$(A) \frac{2x+3}{(x^2+3x+5)^2}$$

$$(B) \frac{1}{x^2+3x+5}$$

$$(C) \frac{2x+3}{x^2+3x+5}$$

$$(Q46.) \frac{d}{dx} ((\tan^{-1}(4x))^2)$$

$$(A) \frac{8 \tan^{-1}(4x)}{1+16x^2}$$

$$(B) \frac{2}{1+(\tan^{-1}(4x))^2}$$

$$(C) \frac{8 \tan^{-1}(4x)}{1+(\tan^{-1}(4x))^2}$$

$$(Q47.) \frac{d}{dx} (\sqrt[3]{x^2})$$

$$(A) \sqrt[3]{2x}$$

$$(B) \frac{2}{3\sqrt[3]{x}}$$

$$(C) \frac{3\sqrt{x}}{2}$$

$$(Q48.) \frac{d}{dx} (\sin(\sqrt{x} \ln x))$$

$$(A) \cos\left(\frac{2+\ln x}{2\sqrt{x}}\right)$$

$$(B) \frac{(2x+\ln x)\cos(\sqrt{x} \ln x)}{2\sqrt{x}}$$

$$(C) \frac{(2+\ln x)\cos(\sqrt{x} \ln x)}{2\sqrt{x}}$$

$$(Q49.) \frac{d}{dx} (\csc(x^2))$$

$$(A) -2x \csc(x^2) \cot(x^2)$$

$$(B) -\csc(x^2) \cot(x^2)$$

$$(C) -\csc(2x) \cot(2x)$$

$$(Q50.) \frac{d}{dx} \left(\frac{x^2 - 1}{\ln x} \right)$$

$$(A) \frac{2x^2 \ln x - x^2 + 1}{x(\ln x)^2}$$

$$(B) \frac{x \ln x - x^2 + 1}{2x(\ln x)^2}$$

$$(C) \frac{2x^2 \ln x - x^2 - 1}{x(\ln x)^2}$$

$$(Q51.) \frac{d}{dx} (10^x)$$

$$(A) \frac{10^x}{\ln 10}$$

$$(B) x(10)^{x-1}$$

$$(C) 10^x \ln 10$$

$$(Q52.) \frac{d}{dx} \left(\sqrt[3]{x + (\ln x)^2} \right)$$

$$(A) \frac{x + 2 \ln x}{3x^{\frac{2}{3}} \sqrt{x + (\ln x)^2}}$$

$$(B) \frac{x + 2 \ln x}{3 \sqrt[3]{x + (\ln x)^2}}$$

$$(C) \frac{1 + 2 \ln x}{3x^{\frac{2}{3}} \sqrt{x + (\ln x)^2}}$$

$$(Q53.) \frac{d}{dx} \left(x^{\frac{3}{4}} - 2x^{\frac{1}{4}} \right)$$

$$(A) \frac{3\sqrt{x} - 2}{4\sqrt[4]{x^3}}$$

$$(B) \frac{3\sqrt{x} - 1}{4\sqrt[4]{x^3}}$$

$$(C) \frac{3\sqrt{x} - 2}{2\sqrt{x^3}}$$

$$(Q54.) \frac{d}{dx} \left(\log_2 \left(x \sqrt{1 + x^2} \right) \right)$$

$$(A) \frac{1 + 2x}{(1 + x^2) \ln 2}$$

$$(B) \frac{1 + x}{x(1 + x^2) \ln 2}$$

$$(C) \frac{1 + 2x^2}{x(1 + x^2) \ln 2}$$

$$(Q55.) \frac{d}{dx} \left(\frac{x - 1}{x^2 - x + 1} \right)$$

$$(A) \frac{-x^2 + 2x}{(x^2 - x + 1)^2}$$

$$(B) \frac{x^2 - 3x}{(x^2 - x + 1)^2}$$

$$(C) \frac{2x^2 - x}{(x^2 - x + 1)^2}$$

$$(Q56.) \frac{d}{dx} \left(\frac{1}{3} \cos^3 x - \cos x \right)$$

$$(A) \sin^4 x \cos^2 x$$

$$(B) \sin^3 x$$

$$(C) \sin^3 x \cos x$$

$$(Q57.) \frac{d}{dx} (e^{x \cos x})$$

$$(A) -x \sin x e^{x \cos x}$$

$$(B) e^{x \cos x} (x \sin x - \cos x)$$

$$(C) e^{x \cos x} (-x \sin x + \cos x)$$

$$(Q58.) \frac{d}{dx} \left((x - \sqrt{x})(x + \sqrt{x}) \right)$$

$$(A) 2x - 1$$

$$(B) x - \frac{1}{4x}$$

$$(C) 1 - \frac{1}{4x}$$

$$(Q59.) \frac{d}{dx} \left(\cot^{-1} \left(\frac{1}{x} \right) \right)$$

$$(A) \frac{-x^2}{1+x^2}$$

$$(B) \frac{1}{1+x^2}$$

$$(C) \frac{-1}{1-x^2}$$

$$(Q60.) \frac{d}{dx} \left(x \tan^{-1} x - \ln(\sqrt{x^2 + 1}) \right)$$

$$(A) \sqrt{x^2 + 1}$$

$$(B) \ln x \tan^{-1} x$$

$$(C) \tan^{-1} x$$

$$(Q61.) \frac{d}{dx} \left(\frac{x\sqrt{1-x^2}}{2} + \frac{\sin^{-1} x}{2} \right)$$

$$(A) \sqrt{1-x^2}$$

$$(B) x \sin^{-1} x$$

$$(C) \sin^{-1} x \sqrt{1-x^2}$$

$$(Q62.) \frac{d}{dx} \left(\frac{\sin x - \cos x}{\sin x + \cos x} \right)$$

$$(A) \frac{2}{\sin x + \cos x}$$

$$(B) \frac{2}{(\sin x + \cos x)^2}$$

$$(C) \frac{2\sin^2 x - 2\cos^2 x}{(\sin x + \cos x)^2}$$

$$(Q63.) \frac{d}{dx} \left(4x^2(2x^3 - 5x^2) \right)$$

$$(A) 40x^4 - 80x^3$$

$$(B) 8x^5 - 20x^4$$

$$(C) 48x^3 - 80x^2$$

$$(Q64.) \frac{d}{dx} \left(\sqrt{x}(4 - x^2) \right)$$

$$(A) \frac{4 - 5x^2}{2\sqrt{x}}$$

$$(B) \frac{4 - 2x}{2\sqrt{x}}$$

$$(C) \frac{4 - x^2}{4\sqrt{x}}$$

$$(Q65.) \frac{d}{dx} \left(\sqrt{\frac{1+x}{1-x}} \right)$$

$$(A) \frac{2}{(1-x)^2 \sqrt{1+x}}$$

$$(B) \frac{1}{\sqrt{1+x} \sqrt{(1-x)^3}}$$

$$(C) \frac{1}{2\sqrt{1-x} \sqrt{(1+x)^3}}$$

$$(Q66.) \frac{d}{dx}(\sin(\sin x))$$

$$(A) \cos x \sin(\cos x)$$

$$(B) \cos(\cos x)$$

$$(C) \cos x \cos(\sin x)$$

$$(Q67.) \frac{d}{dx} \left(\frac{1+e^{2x}}{1-e^{2x}} \right)$$

$$(A) \frac{4e^{2x}}{(1-e^{2x})^2}$$

$$(B) \frac{2e^{2x}}{(1-e^{2x})^2}$$

$$(C) \frac{-2e^{2x}}{(1-e^{2x})^2}$$

$$(Q68.) \frac{d}{dx} \left(\frac{x}{1+\ln x} \right)$$

$$(A) \frac{x}{(1+\ln x)^2}$$

$$(B) \frac{\ln x}{(1+\ln x)^2}$$

$$(C) \frac{x \ln x}{(1+\ln x)^2}$$

$$(Q69.) \frac{d}{dx} \left(x^{\frac{x}{\ln x}} \right)$$

$$(A) x^{\frac{x}{\ln x}} (1+\ln x)$$

$$(B) x^{\frac{x}{\ln x}} (x+\ln x)$$

$$(C) x^{\frac{x}{\ln x}}$$

$$(Q70.) \frac{d}{dx} \left(\ln \left(\sqrt{\frac{x^2-1}{x^2+1}} \right) \right)$$

$$(A) \frac{2x}{x^4-1}$$

$$(B) \frac{x-2}{x^4-1}$$

$$(C) \frac{-2x^2}{x^4-1}$$

$$(Q71.) \frac{d}{dx} (\tan^{-1}(2x+3))$$

$$(A) \frac{1}{4x^2+12x+10}$$

$$(B) \frac{1}{2x^2+6x+5}$$

$$(C) \frac{1}{2x^2+6x+3}$$

$$(Q72.) \frac{d}{dx} (\cot^4(2x))$$

$$(A) 16 \cot^3(2x) \csc^2(2x)$$

$$(B) 8 \cot^3(2x) \csc^2(2x)$$

$$(C) -8 \cot^3(2x) \csc^2(2x)$$

$$(Q73.) \frac{d}{dx} \left(\frac{x^2}{1+\frac{1}{x}} \right)$$

$$(A) \frac{2x^3+3x^2}{(x+1)^2}$$

$$(B) \frac{2x^3-3x^2}{(x+1)^2}$$

$$(C) \frac{3x^3-2x^2}{(x+1)^2}$$

$$(Q74.) \frac{d}{dx} \left(e^{\frac{x}{1+x^2}} \right)$$

$$(A) \frac{e^{\frac{x}{1+x^2}} (1-2x^2)}{(1+x^2)^2}$$

$$(B) \frac{e^{\frac{x}{1+x^2}} (1-x^2)}{(1+x^2)^2}$$

$$(C) \frac{e^{\frac{x}{1+x^2}} (-1+2x)}{(1+x^2)^2}$$

$$(Q75.) \frac{d}{dx} \left((\sin^{-1} x)^3 \right)$$

$$(A) 3(\cos^{-1} x)^2$$

$$(B) \frac{3\cos^{-1} x}{1-x^2}$$

$$(C) \frac{3(\sin^{-1} x)^2}{\sqrt{1-x^2}}$$

$$(Q76.) \frac{d}{dx} \left(\frac{1}{2} \sec^2(x) - \ln(\sec x) \right)$$

$$(A) \tan^3 x$$

$$(B) \tan^2 x \sec x$$

$$(C) 2 \tan^2 x \sec x$$

$$(Q77.) \frac{d}{dx} (\ln(\ln(\ln x)))$$

$$(A) \frac{1}{\ln(\ln(\ln x))}$$

$$(B) \frac{1}{x \ln x \ln(\ln x)}$$

$$(C) \frac{1}{x \ln(\ln x)}$$

$$(Q78.) \frac{d}{dx} (\pi^3)$$

$$(A) 4\pi^4$$

$$(B) 3\pi^2$$

$$(C) 0$$

$$(Q79.) \frac{d}{dx} \left(\ln \left(x + \sqrt{1+x^2} \right) \right)$$

$$(A) \frac{1}{\sqrt{1+x^2}}$$

$$(B) \frac{1}{x + \sqrt{1+x^2}}$$

$$(C) \frac{2x}{x + \sqrt{1+x^2}}$$

$$(Q80.) \frac{d}{dx} (\sinh^{-1} x)$$

$$(A) \frac{1}{x + \sqrt{1+x^2}}$$

$$(B) \frac{1}{\sqrt{1+x^2}}$$

$$(C) \frac{x^2}{x + \sqrt{1+x^2}}$$

$$(Q81.) \frac{d}{dx} (e^x \sinh x)$$

$$(A) 2e^{2x}$$

$$(B) e^x \cosh x$$

$$(C) e^{2x}$$

$$(Q82.) \frac{d}{dx} \left(\operatorname{sech} \left(\frac{1}{x} \right) \right)$$

$$(A) \frac{\operatorname{sech} \left(\frac{1}{x} \right) \tanh \left(\frac{1}{x} \right)}{x^2}$$

$$(B) \frac{-\operatorname{sech} \left(\frac{1}{x} \right) \tanh \left(\frac{1}{x} \right)}{x^2}$$

$$(C) \frac{1}{\operatorname{sech}^2 \left(\frac{1}{x} \right)}$$

$$(Q83.) \frac{d}{dx} \left(\cosh(\ln x) \right)$$

$$(A) \frac{2x^2 - 1}{x^2}$$

$$(B) \frac{x^2 - 1}{2x^2}$$

$$(C) \frac{x^2 + 1}{2x^2}$$

$$(Q84.) \frac{d}{dx} \left(\ln(\cosh x) \right)$$

$$(A) \coth x$$

$$(B) -\tanh x$$

$$(C) \tanh x$$

$$(Q85.) \frac{d}{dx} \left(\frac{\sinh x}{1 + \cosh x} \right)$$

$$(A) \frac{1}{1 + \cosh x}$$

$$(B) \frac{1}{(1 + \cosh x)^2}$$

$$(C) \frac{-1}{(1 + \cosh x)^2}$$

$$(Q86.) \frac{d}{dx} \left(\tanh^{-1}(\cos x) \right)$$

$$(A) \operatorname{csch} x$$

$$(B) -\csc x$$

$$(C) -\sec x$$

$$(Q87.) \frac{d}{dx} \left(x \tanh^{-1} x + \ln \sqrt{1 - x^2} \right)$$

$$(A) \operatorname{sech}^2 x$$

$$(B) \ln x \tanh^{-1} x$$

$$(C) \tanh^{-1} x$$

$$(Q88.) \frac{d}{dx} \left(\sinh^{-1}(\tan x) \right)$$

$$(A) \sec x$$

$$(B) \operatorname{sech} x$$

$$(C) \cosh x$$

$$(Q89.) \frac{d}{dx} \left(\sin^{-1}(\tanh x) \right)$$

$$(A) \sec x$$

$$(B) \operatorname{sech} x$$

$$(C) \cosh x$$

$$(Q90.) \frac{d}{dx} \left(\frac{\tanh^{-1} x}{1 - x^2} \right)$$

$$(A) \frac{1 - 2x \tanh^{-1} x}{(1 - x^2)^2}$$

$$(B) (\tanh^{-1} x)^2$$

$$(C) \frac{1 + 2x \tanh^{-1} x}{(1 - x^2)^2}$$

(Q91.) $\frac{d}{dx}(x^3)$, use the definition of derivative

(Q92.) $\frac{d}{dx}(\sqrt{3x+1})$, use the definition of derivative

(Q93.) $\frac{d}{dx}\left(\frac{1}{2x+5}\right)$, use the definition of derivative

(Q94.) $\frac{d}{dx}\left(\frac{1}{x^2}\right)$, use the definition of derivative

(Q95.) $\frac{d}{dx}(\sin x)$, use the definition of derivative

(Q96.) $\frac{d}{dx}(\sec x)$, use the definition of derivative

(Q97.) $\frac{d}{dx}(\sin^{-1} x)$, use the definition of derivative

(Q98.) $\frac{d}{dx}(\tan^{-1} x)$, use the definition of derivative

(Q99.) $\frac{d}{dx}(f(x)g(x))$, use the definition of derivative

(Q100.) $\frac{d}{dx}\left(\frac{f(x)}{g(x)}\right)$, use the definition of derivative

(Q101.) $\frac{d}{dx}(^3x)$