1 Differentiation

$$\frac{72}{x^9} \tag{1}$$

$$-\frac{\left(\tan^2\left(\sin\left(\cot\left(x\right)\right)\right)+1\right)\cos\left(\cot\left(x\right)\right)}{\sin^2\left(x\right)} \tag{2}$$

$$\frac{3\sin\left(\frac{1}{\ln\left(x\right)^3}\right)}{x\ln\left(x\right)^4} \tag{3}$$

$$-\frac{1}{x\cos^2\left(\ln\left(\frac{1}{x}\right)\right)} \tag{4}$$

$$-\frac{1}{x\ln\left(\frac{1}{x}\right)} \tag{5}$$

$$\frac{\left(\tan^2\left(\cos\left(\cot\left(x\right)\right)\right)+1\right)\sin\left(\cot\left(x\right)\right)}{\sin^2\left(x\right)} \tag{6}$$

$$-8\ln\left(e\right) \tag{7}$$

$$-\frac{1}{4\left(x-5\right)^2} \tag{8}$$

$$-\frac{4e^{-4\tan\left(x\right)}\ln\left(e\right)}{\cos^2\left(x\right)} \tag{9}$$

$$\frac{e^{\frac{1}{x}}\ln\left(e\right)\cot\left(e^{\frac{1}{x}}\right)\csc\left(e^{\frac{1}{x}}\right)}{x^2} \tag{10}$$

$$-\frac{4\sin\left(4x-8\right)}{\cos^2\left(\cos\left(4x-8\right)\right)} \tag{11}$$

$$\frac{\sin\left(\frac{1}{2(x+1)}\right)}{2\left(x+1\right)^2} \tag{12}$$

$$\frac{2\cos\left(\ln\left(x\right)\right)}{x} \tag{13}$$

$$-\frac{7e^{-7x}\ln\left(e\right)}{\cos^2\left(e^{-7x}\right)} \tag{14}$$

$$-\cos\left(\ln\left(\csc\left(x\right)\right)\right)\cot\left(x\right) \tag{15}$$

$$\frac{\sin\left(x\right)}{\sin^2\left(\cos\left(x\right)\right)} \tag{16}$$

$$-e^{5-x}\ln\left(e\right)\cos\left(e^{5-x}\right) \tag{17}$$

$$-\frac{2\cos\left(x\right)\cos\left(\sin\left(x\right)\right)}{\sin^3\left(\sin\left(x\right)\right)} \tag{18}$$

$$56\tan^2\left(56x-67\right)+56 \tag{19}$$

$$-\frac{3x^2\sin\left(\tan\left(x^3\right)\right)}{\cos^2\left(x^3\right)} \tag{20}$$

2 Matrices

$$\begin{bmatrix} -\frac{11}{345} & \frac{7}{115} & -\frac{17}{345} \\ -\frac{4}{69} & -\frac{7}{69} & -\frac{2}{69} \\ \frac{37}{345} & \frac{13}{345} & -\frac{16}{345} \end{bmatrix} \tag{21}$$

$$\begin{bmatrix} \frac{53}{60} & \frac{11}{20} & -\frac{13}{15} \\ -\frac{14}{15} & -\frac{3}{5} & \frac{16}{15} \\ \frac{22}{15} & \frac{4}{5} & -\frac{23}{15} \end{bmatrix} \tag{22}$$

$$\begin{bmatrix} -\frac{26}{53} & -\frac{9}{53} & \frac{11}{53} \\ -\frac{21}{53} & \frac{7}{53} & \frac{15}{53} \\ \frac{9}{53} & -\frac{3}{53} & -\frac{14}{53} \end{bmatrix} \tag{23}$$

$$\begin{bmatrix} -\frac{3}{20} & -\frac{19}{10} & -\frac{23}{20} \\ \frac{1}{20} & \frac{3}{10} & \frac{1}{20} \\ -\frac{9}{20} & -\frac{27}{10} & -\frac{29}{20} \end{bmatrix} \tag{24}$$

$$\begin{bmatrix} \frac{1}{8} & -\frac{5}{44} & -\frac{1}{44} \\ \frac{3}{16} & -\frac{3}{88} & \frac{7}{264} \\ -\frac{1}{16} & \frac{9}{88} & -\frac{7}{88} \end{bmatrix} \tag{25}$$

$$\begin{bmatrix} \frac{7}{37} & -\frac{9}{37} & -\frac{5}{37} \\ \frac{1}{37} & \frac{45}{74} & -\frac{6}{37} \\ -\frac{6}{37} & \frac{13}{37} & -\frac{1}{37} \end{bmatrix} \tag{26}$$

$$\begin{bmatrix} 0 & \frac{3}{49} & -\frac{1}{14} \\ -\frac{1}{2} & -\frac{17}{49} & -\frac{5}{28} \\ 0 & \frac{4}{49} & \frac{1}{14} \end{bmatrix} \tag{27}$$

$$\begin{bmatrix} -\frac{57}{118} & \frac{37}{118} & -\frac{69}{118} \\ -\frac{35}{118} & \frac{31}{118} & -\frac{61}{118} \\ -\frac{1}{118} & \frac{11}{118} & \frac{5}{118} \end{bmatrix} \tag{28}$$

$$\begin{bmatrix} \frac{3}{11} & \frac{1}{11} & 0 \\ \frac{19}{220} & -\frac{3}{55} & \frac{1}{10} \\ -\frac{89}{220} & -\frac{12}{55} & -\frac{1}{10} \end{bmatrix} \tag{29}$$

$$\begin{bmatrix} -\frac{24}{125} & \frac{11}{125} & -\frac{8}{125} \\ -\frac{21}{125} & -\frac{6}{125} & -\frac{7}{125} \\ \frac{22}{125} & -\frac{41}{250} & -\frac{27}{250} \end{bmatrix} \tag{30}$$

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$$x^3 - 29x^2 + 280x - 900 \tag{31}$$

$$x^3 + 11x^2 + 20x - 32 \tag{32}$$

$$x^3 - 13x^2 + 47x - 35 \tag{33}$$

$$x^3 + 2x^2 - 85x - 350 \tag{34}$$

$$x^3 - 4x^2 - 39x + 126 \tag{35}$$

$$x^3 + 5x^2 - 57x - 189 \tag{36}$$

$$x^3 + 9x^2 - 22x - 240 \tag{37}$$

$$x^3 - 5x^2 - 29x + 105 \tag{38}$$

$$x^3 - 6x^2 + 3x + 10 \tag{39}$$

$$x^3 - 27x^2 + 240x - 700 \tag{40}$$