Q.1: Use Cramer rule and solve the following system:

\[\begin{align*}
5x + 2y + 2z &= 5 \\
x + 2y - 4z &= 2 \\
-x - y + 3z &= -4
\end{align*}\]

Q.2: Find domain, range and sketch:

(1) \(y = 4\cos x + 2\)  
(2) \(y = |x-2|/2\).

Q.3: by using L'Hopital rule find three of the following:

(1) \(\lim_{x \to \frac{\pi}{4}} (1 - \tan x)\sec x\)  
(2) \(\lim_{x \to 0} \left( \frac{1}{x} - \frac{1}{\sin x} \right)\)  
(3) \(\lim_{x \to 0} x^2 e^{-x}\)  
(4) \(\lim_{x \to 0} x^2 \ln x\).

Q.4: derive three of the following:

(1) \(x + \sec y = 4\)  
(2) \(y = \int \cot x\)  
(3) \(y = 4 \cosh x\)  
(4) \(\ln xy = \ln \cos x\)

Q.5: Evaluate three of the following integrals:

(1) \(\int \frac{(e^x - e^{-x})}{(e^x - e^{-x}) + 1} \) dx  
(2) \(\int \tan^2 x \sec^2 x \) dx  
(3) \(\int dx / x^2 - 4\)  
(4) \(\int \sin 3x \cos 3x \) dx

Q.6: Find the area between \(y = x^2 + x\) and x-axis.