**PROGRAM 7**

\documentclass{article}

\usepackage{amsmath} % Required for mathematical environments and symbols

\begin{document}

\title{Following Two Mathematical Equations}

\date{}

\maketitle

% Use the 'align' environment to align equations properly

\[

\begin{aligned}

% Left side: equations about 'x'

& \begin{aligned}

x &= \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \\

&= \frac{-2 \pm \sqrt{2^2 - 4 \cdot 1 \cdot (-8)}}{2 \cdot 1} \\

&= \frac{-2 \pm \sqrt{4 + 32}}{2}

\end{aligned}

\quad

% Add horizontal space between left and right sides

&

% Right side: equations about '\varphi\_{\sigma}^{\lambda} A\_{t}'

\begin{aligned}

\varphi\_{\sigma}^{\lambda} A\_{t} &= \sum\_{\pi \in C\_{t}} \operatorname{sgn}(\pi) \varphi\_{\sigma}^{\lambda} \varphi\_{\pi}^{\lambda} \\

&= \sum\_{\tau \in C\_{\sigma t}} \operatorname{sgn}(\sigma^{-1} \tau \sigma) \varphi\_{\sigma}^{\lambda} \varphi\_{\varphi^{-1} \tau \sigma}^{\lambda} \\

&= A\_{\sigma t} \varphi\_{\sigma}^{\lambda}

\end{aligned}

\end{aligned}

\]

\end{document}