

## **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
\[
\begin{aligned}
& \text{\% Left side: equations about 'x'} \\
& \& \begin{aligned}
x &= \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \\
&= \frac{-2 \pm \sqrt{2^2 - 4 \cdot 1 \cdot (-8)}}{2 \cdot 1} \\
&= \frac{-2 \pm \sqrt{4 + 32}}{2}
\end{aligned} \\
& \end{aligned} \\
& \quad \\
& \text{\% Add horizontal space between left and right sides} \\
& \& \\
& \text{\% Right side: equations about '\varphi_{\sigma}^{\lambda} A_t'} \\
& \begin{aligned}
\varphi_{\sigma}^{\lambda} A_t &= \sum_{\pi \in C_t} \operatorname{sgn}(\pi) \\
& \varphi_{\sigma}^{\lambda} \varphi_{\pi}^{\lambda} \\
&= \sum_{\tau \in C_{\sigma t}} \operatorname{sgn}(\sigma^{-1} \tau \sigma) \\
& \varphi_{\sigma}^{\lambda} \varphi_{\varphi^{-1} \tau \sigma}^{\lambda} \\
&= A_{\sigma t} \varphi_{\sigma}^{\lambda}
\end{aligned} \\
& \end{aligned} \\
& \end{aligned} \\
\]
```

\end{document}