



(a)

$$\begin{aligned}
 & Diff(wa, nt) \wedge Diff(wa, sa) \wedge \\
 & Diff(nt, q) \wedge Diff(nt, sa) \wedge \\
 & Diff(q, nsw) \wedge Diff(q, sa) \wedge \\
 & Diff(nsw, v) \wedge Diff(nsw, sa) \wedge \\
 & Diff(v, sa) \Rightarrow Colorable() \\
 \\
 & Diff(\\textit{Red}, \\textit{Blue}) \quad Diff(\\textit{Red}, \\textit{Green}) \\
 & Diff(\\textit{Green}, \\textit{Red}) \quad Diff(\\textit{Green}, \\textit{Blue}) \\
 & Diff(\\textit{Blue}, \\textit{Red}) \quad Diff(\\textit{Blue}, \\textit{Green})
 \end{aligned}$$

(b)