

$$\begin{aligned}
 c) \quad m &= 3x_p^2 / (2y_p) = 3 \cdot 3^2 / (2 \cdot (-5.83095)) = -2.31523 \\
 x_R &= m^2 - 2x_p = (-2.31523)^2 - 2 \cdot 3 = -0.63970 \\
 y_R &= m(x_p - x_R) - y_p = -2.31523 \cdot (3 - (-0.63970)) \\
 &\quad - (-5.83095) = -2.59581 \\
 P + P &\rightarrow R, \quad R + R \rightarrow S \\
 m &= 3x_R^2 / (2y_R) = 3 \cdot (-0.63970)^2 / (2 \cdot (-2.59581)) \\
 &= -0.23647 \\
 x_S &= m^2 - 2x_R = (-0.23647)^2 - 2 \cdot (-0.63970) \\
 &= 1.33533 \\
 y_S &= m(x_R - x_S) - y_R = -0.23647(-0.63970 - \\
 &\quad 1.33533) - (-2.59581) = 3.06285 \\
 4P &\rightarrow \underline{\underline{S \begin{pmatrix} 1.3353 \\ 3.0628 \end{pmatrix}}}
 \end{aligned}$$

$$\begin{aligned}
 C.4) \quad m &= \frac{y_Q - y_P}{x_Q - x_P} = \frac{2.29608 - (-3.22102)}{-1.2 - 1.5} = -2.04337 \\
 x_R &= m^2 - x_P - x_Q = (-2.04337)^2 - 1.5 - (-1.2) \\
 &= 3.87536 \\
 y_R &= m \cdot (x_P - x_R) - y_P = -2.04337 \cdot (1.5 - 3.87536) \\
 &\quad - (-3.22102) = 8.07480 \\
 R + R &\rightarrow S \qquad R \begin{pmatrix} 3.87538 \\ 8.07480 \end{pmatrix} \\
 m &= 3x_R^2 / (2y_R) = 3 \cdot 3.87538^2 / (2 \cdot 8.07480) \\
 &= 2.78989 \\
 x_S &= m^2 - 2x_R = 2.78989^2 - 2 \cdot 3.87538 = 0.032726 \\
 y_S &= m \cdot (x_R - x_S) - y_R = 2.78989 \cdot (3.87538 - \\
 &\quad 0.032726) - 8.07480 = 2.64578 \\
 &\qquad \underline{\underline{S \begin{pmatrix} 0.03273 \\ 2.64576 \end{pmatrix}}}
 \end{aligned}$$