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[> restart : # Cournot-Incomplete.mw
[> J[1] := theta*(a - (q[1] + q[2 H]) - c)*q[1] + (1 - theta)*(a - (q[1] + q[2 L]) - c)
      *q[1]
      
$$J_1 := \theta (a - q_1 - q_{2H} - c) q_1 + (1 - \theta) (a - q_1 - q_{2L} - c) q_1 \quad (1)$$

[> J[2 H] := (a - (q[1] + q[2 H]) - c[H])*q[2 H]
      
$$J_{2H} := (a - q_1 - q_{2H} - c_H) q_{2H} \quad (2)$$

[> J[2 L] := (a - (q[1] + q[2 L]) - c[L])*q[2 L]
      
$$J_{2L} := (a - q_1 - q_{2L} - c_L) q_{2L} \quad (3)$$

[> DJ[1] := collect( diff(J[1], q[1]), theta);
      
$$DJ_1 := (-q_{2H} + q_{2L}) \theta + a - 2 q_1 - q_{2L} - c \quad (4)$$

[> DJ[2 H] := diff(J[2 H], q[2 H])
      
$$DJ_{2H} := -2 q_{2H} + a - q_1 - c_H \quad (5)$$

[> DJ[2 L] := diff(J[2 L], q[2 L])
      
$$DJ_{2L} := -2 q_{2L} + a - q_1 - c_L \quad (6)$$

[> solve( {DJ[1], DJ[2 H], DJ[2 L]}, {q[1], q[2 H], q[2 L]})
      
$$\left\{ q_1 = \frac{1}{3} a + \frac{1}{3} c_L - \frac{2}{3} c + \frac{1}{3} \theta c_H - \frac{1}{3} \theta c_L, q_{2H} = \frac{1}{3} a - \frac{1}{6} c_L + \frac{1}{3} c - \frac{1}{6} \theta c_H \right. \\ \left. + \frac{1}{6} \theta c_L - \frac{1}{2} c_H, q_{2L} = \frac{1}{3} a - \frac{2}{3} c_L + \frac{1}{3} c - \frac{1}{6} \theta c_H + \frac{1}{6} \theta c_L \right\} \quad (7)$$

[> assign(%);
[> q[1];
      
$$\frac{1}{3} a + \frac{1}{3} c_L - \frac{2}{3} c + \frac{1}{3} \theta c_H - \frac{1}{3} \theta c_L \quad (8)$$

[> q[2 H]
      
$$\frac{1}{3} a - \frac{1}{6} c_L + \frac{1}{3} c - \frac{1}{6} \theta c_H + \frac{1}{6} \theta c_L - \frac{1}{2} c_H \quad (9)$$

[> q[2 L]
      
$$\frac{1}{3} a - \frac{2}{3} c_L + \frac{1}{3} c - \frac{1}{6} \theta c_H + \frac{1}{6} \theta c_L \quad (10)$$

[>

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