> restart
> \[ P[D, h] := p = 40 - q \]
> \[ P[S, h] := p = 10 + q \]

\[ P_{D, h} := p = 40 - q \]
\[ P_{S, h} := p = 10 + q \] (1)

> \[ eqm[q, h] := solve( P[D, h] - P[S, h], \{ q \} ) \]

\[ eqm_{q, h} := \{ q = 15 \} \] (2)

> \[ subs( P[D, h], p ) \]

\[ 40 - q \] (3)

> \[ subs( \{ q = 15 \}, \% ) \]

\[ 25 \] (4)

> \[ eqm[p, h] := p = subs( P[D, h], eqm[q, h], p ) \]

\[ eqm_{p, h} := p = 25 \] (5)

> \[ ColorTools:-GetPalette( "HTML" ) : \]
> \[ pstuff := thickness = 4, tickmarks = [ default, [ seq(i\cdot5, i = 0 .. 8) ] ], titlefont = [ Helvetica, Bold, 14 ], labelfont = [ "ROMAN", 20 ] \]
> \[ pstuff := thickness = 4, tickmarks = [ default, [ 0, 5, 10, 15, 20, 25, 30, 35, 40 ] ], titlefont = [ Helvetica, Bold, 14 ], labelfont = [ "ROMAN", 20 ] \] (6)

> \[ P[h] := plots[ implicitplot ]( [ P[D, h], P[S, h], eqm[ p, h ] ], q = 0 .. 25, p = 10 .. 30, color = [ red, blue, black ], pstuff, title = "Home Supply and Demand" ) \]
Home Supply and Demand

\[ P[D,f] := p = 30 - q \]
\[ P[S,f] := p = q \]

\[ P_{D,f} := p = 30 - q \]
\[ P_{S,f} := p = q \]

\[ eqm[q,f] := solve(P[D,h] - P[S,h], \{q\}) \]
\[ eqm_{q,f} := \{ q = 15 \} \]

\[ eqm_{p,f} := p = 15 \]

\[ P_f := plots[implicitplot](\{ P[D,f], P[S,f], eqm[p,f] \}, q = 0 .. 25, p = 10 .. 30, color = [magenta, green, black], pstuff, title = "Foreign Supply and Demand") \]
> ImportDemand := q = solve(P[D, h],q) - solve(P[S, h],q)  
> ImportDemand := q = 50 - 2 p

> ExportSupply := q = solve(P[S, f],q) - solve(P[D, f],q)  
> ExportSupply := q = 2 p - 30

> eqm[ExIm] := p = solve(ImportDemand - ExportSupply, p)  
> eqm[ExIm] := p = 20

> P_ExIm := plots[implicitplot]([[ImportDemand, ExportSupply, eqm[ExIm]], q = 0..25, p = 10..30, color = [purple, orange], pstuff,  
> title = "Export Supply and Import Demand", tickmarks = [default, [10, 15, 20, 25, 30]])
Export Supply and Import Demand

\[ p \]

\[ q \]

\[ P_{test} := Array(1..1, 1..3, \{P_h, P_f, P_{ExIm}\}) : \]

\[ plots[display](Ptest) \]
\[ \tau := 6 \]

\[ \text{ImportDemand} - \text{ExportSupply} \]

\[ 0 = 80 - 4p \]
\begin{align}
\text{subs} (p = p_h, \text{ImportDemand}) & \quad q = 50 - 2 p_h \\
\text{subs} (p = p_f, \text{ExportSupply}) & \quad q = 2 p_f - 30 \\
\text{subs} (p = p_h, \text{ImportDemand}) - \text{subs} (p = p_f, \text{ExportSupply}) & \quad 0 = 80 - 2 p_h - 2 p_f \\
\text{subs} (p_h = p_f + \tau, \%) & \quad 0 = 68 - 4 p_f \\
\text{eqm} [\text{ExIm}, \text{tariff}] := p_f = \text{solve} (\%, p_f) & \quad \text{eqm}_{\text{ExIm, tariff}} := p_f = 17 \\
\text{P_tariff} := \text{plots} [\text{implicitplot}] ([p_f = 17 + \tau, \text{eqm} [\text{ExIm}, \text{tariff}], \text{subs} (p = p_f, \text{eqm} [\text{ExIm}, \text{tariff}], \text{ExportSupply}) ], q = 0..4, p_f = 17..23, \text{pstuff}, \text{color} = \text{cyan}) : \\
\text{P_incid} := \text{plots} [\text{display}](\text{P_ExIm}, \text{P_tariff}, \text{tickmarks} = [ [0, 4, 10, 20, 30], [10, 15, 17, 20, 23, 25, 30] ], \text{title} = \text{"Tariff Incidence"})
\end{align}
\begin{verbatim}
P_ft := plots[implicitplot]([P[D, f], P[S, f], p = 17], q = 0..25, p = 10..40, color = [magenta, green, black], pstuff, title = "Foreign Supply and Demand", tickmarks = [[0, 5, 12, 15, 18, 20, 25, 30], [0, 5, 10, 15, 17, 20, 25, 30]])
\end{verbatim}
\begin{verbatim}
> P_h := plots[implicitplot]([P[D, h], P[S, h], p = 23], q = 0 .. 25, p = 0 .. 30, color = [red, blue, black], pstuff, title = "Home Supply and Demand", tickmarks = [[0, 5, 12, 15, 18, 20, 25, 30], [0, 5, 10, 15, 20, 23, 25, 30, 40]])
\end{verbatim}
Home Supply and Demand

\[ p \]

\[ q \]

> plots[display](P_ft)
> Ptest2 := Array(1 .. 1, 1 .. 3, [P_ht, P_ft, P_incid]) :
> plots[display](Ptest2)
Home consumers pay 23
Home producers receive 23
Excess demand is imported
Foreign consumers pay 17
Foreign producers receive 17
Excess supply is exported