

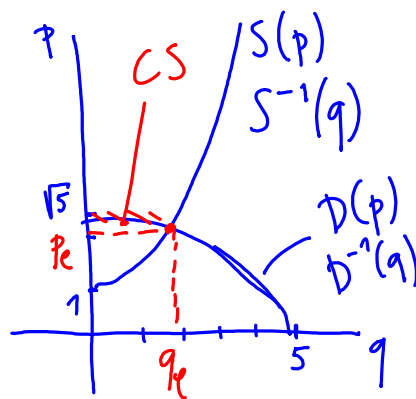
Oef 9 p A.25

$$D^{-1}(q) = \sqrt{5-q} = p \Leftrightarrow 5-q = p^2$$

$$S^{-1}(q) = 1+q^2 = p \Leftrightarrow q = 5-p^2 = D(p)$$

$$\Leftrightarrow q^2 = p-1 \Leftrightarrow q = \sqrt{p-1} = S(p)$$

Schets:



marktevenwicht

$$D^{-1}(q) = S^{-1}(q)$$

$$\Leftrightarrow \sqrt{5-q} = 1+q^2$$

$$\Leftrightarrow 5-q = q^4 + 2q^2 + 1$$

$$\Leftrightarrow q^4 + 2q^2 + q - 4 = 0$$

$q=1$ is root

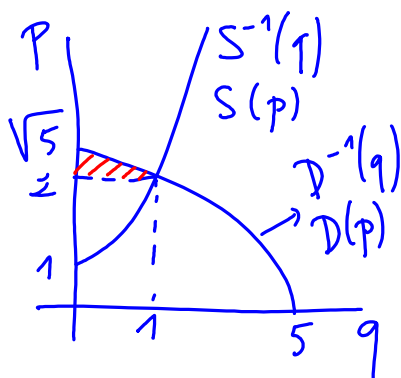
$$\begin{array}{c|cccc} 1 & 1 & 0 & 2 & 1 & -4 \\ \hline 1 & \downarrow & 1 & 1 & 3 & 4 \\ \hline & 1 & 1 & 3 & 4 & 0 \end{array}$$

$$\Leftrightarrow (q-1)(q^3 + q^2 + 3q + 4) = 0$$

$q > 0 \quad > 4$

$$\Rightarrow q_e = 1$$

$$\Rightarrow p_e = D^{-1}(1) = 2$$



(S als integraal in p.

$$\begin{aligned}
 CS &= \int_2^{\sqrt{5}} D(p) dp \\
 &= \int_2^{\sqrt{5}} (5-p^2) dp \\
 &= \left[5p - \frac{p^3}{3} \right]_2^{\sqrt{5}}
 \end{aligned}$$

$$\begin{aligned}
 &= 5\sqrt{5} - \frac{5\sqrt{5}}{3} - \left(10 - \frac{8}{3}\right) \\
 &= \frac{2}{3} 5\sqrt{5} - \frac{22}{3} \\
 &= \frac{10\sqrt{5} - 22}{3}
 \end{aligned}$$

(S als integraal in q

$$\begin{aligned}
 CS &= \int_0^1 D^{-1}(q) dq - 1 \cdot 2 \\
 &= \int_0^1 \sqrt{5-q} dq - 2 \\
 &= - \int_0^1 \sqrt{5-q} d(5-q) - 2 \\
 &= - \left[\frac{(5-q)^{3/2}}{3/2} \right]_0^1 - 2 \\
 &= -\frac{2}{3} [8 - 5\sqrt{5}] - 2 = \frac{10\sqrt{5}}{3} - \frac{22}{3}
 \end{aligned}$$