

33 Incorrect. The answer is false not true. Domestic welfare is maximized at $MC_d = P_d$ and export revenue is maximized at $MR_x = MC_x$.

These two conditions require that $MR_x = MC = P_d$.

$$MR_x = 160 - 4Q_x$$

$$MC = 2 + (Q_x + Q_d)$$

$$P_d = 40 - Q_d$$

Set $P_d = MR_x$

$$40 - Q_d = 160 - 4Q_x$$

Solve for Q_d

$$Q_d = -120 + 4Q_x$$

Set $MR_x = MC$

$$160 - 4Q_x = 2 + (Q_x + Q_d)$$

Solve for $Q_d = 158 - 5Q_x$.

Set Q_d from each of these solutions equal to each other

$$-120 + 4Q_x = 158 - 5Q_x$$

Solve for $Q_x = 30.8889$.

At this Q_x ,

$$P_x = 160 - 2(30.8889) = 98.222.$$

Then from above

$$Q_d = -120 + 4(30.8889) = 3.5556.$$

$$P_d = 40 - Q_d = 40 - 3.5556 = 36.4444.$$