

**33. Correct. The answer is false.** 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

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

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