

Answer to Question #91111, Economics / Microeconomics

$$\text{Demand: } P = 20 - 0.1Q$$

$$TC = 120 + 2Q + 0.05Q^2$$

c) Let maximum quantity and price be Q_m and P_m respectively

At (Q_m, P_m) , $MR=MC$

$$TR = P * Q = 20Q - 0.1Q^2$$

$$MR = (TR)' = 20 - 0.2Q$$

$$MC = (TC)' = 2 + 0.1Q$$

$$Q_m = 60, P_m = 20 - 0.1(60) = \$14$$

b) $Profit = TR - TC$

$$TR = P_m * Q_m = \$840$$

$$TC(Q_m) = \$420$$

$$Profit = 840 - 420 = \$420$$

c) Vertical intercept = 20

$$Cs = 0.5(20 - 14)(60) = \$180$$

d) $DWL = 0.5 * (P_2 - P_1) * (Q_1 - Q_2)$

$$P = MC$$

$$20 - 0.1Q = 2 + 0.1Q$$

$$Q = 90, P = 11$$

$$DWL = 0.5(14 - 11)(90 - 60) = \$45$$

Answer provided by <https://www.AssignmentExpert.com>