

23. Correct. The answer is false. OPEC's demand is world demand minus the supply of the fringe represented by the inverse marginal cost of the fringe. $Q_d - Q_f = Q = 50 - 5P + 1.2 \cdot 75 - (-0.33333 + 0.066667P) = 140.3333 - 5.06667P$. Inverse OPEC demand is $P = 27.697 - 0.19737Q_o$ and $MR = 27.697 - 0.39474Q$. Setting OPEC's marginal revenue equal to marginal cost $27.697 - 0.39474Q = 2 + 6Q_o$. Solving yields $Q_o = 4.019$. $P = 27.697 - 0.19737 \cdot 4.019 = 26.904$. Fringe production is where fringe marginal cost equals price $26.904 = 5 + 15Q_f$. $Q_f = 1.46$. World demand at this price is $Q_w = 140 - 5 \cdot 26.904 = 5.479$. We need to check whether this production is to the left of the kink. The kink is at a price where the fringe produces nothing or where $P = 5 + 15 \cdot 0 = 5$. World demand at a price of 5 is $Q_w = 140 - 5 \cdot 5 = 115$. Since Q_w is less than 115, we are to the left of the kink and this is the correct answer. So OPEC produces more than the fringe. OPEC profits are $PQ_o - \int MC_o = 26.904 \cdot 4.019 - 2 \cdot 4.019 - 6/2 \cdot 4.019^2 = 51.633$. Fringe profits are $26.904 \cdot 1.46 - 5 \cdot 1.46 - 15/2 \cdot 1.46^2 = 15.993$.