21. Correct. The answer is true. To get total MC for the firm horizontally sum the inverse MC costs curve. Or at each MC add the quantities.

$Q1 = -7.5 + 0.5MC1$,

$Q2 = -0.833 + 0.167MC2$.

Total quantity is $Q1+Q2 = Q = -8.333+0.667MC$.

Reinvert the summed MC curve to get $MC = 12.5 + 1.5Q$.

Invert demand to get

$P = 100 - 1Q$. Then $MR = 100 - 2Q$.

Set $MC = MR$.

$12.5 + 1.5Q = 100 - 2Q$.

Solving yields $Q = 25$. $P = 100 - 25 = 75$.

Production in plant 1 is where

$MC1 = MC = 50 = 15 + 2Q1$.

$Q1 = 17.5$.

Production in plant 2 is where

$MC2 = 50 = 5 + 6Q2$. $Q2 = 7.5$.

Profits can be computed as $P*Q - \int MC1 \, dQ1 - \int MC2 \, dQ2$.