

Answer on Question #40775 – Economics - Microeconomics

$p = 120 - Q$; $MC = 10$, $r = 10$ per unit.

Total revenue is $TR = P \cdot Q = 120Q - Q^2$.

Marginal revenue is $MR = TR' = 120 - 2Q$.

Monopolist quantity produced is maximized, if $MR = MC$.

$120 - 2Q = 10$.

$Q = 55$ units.

We find optimal price from the demand curve:

$P = 120 - 55 = \$65$.

$TR = 65 \cdot 55 = \$3575$.

If the tax is imposed, new demand curve will be:

$P - 10 = 120 - Q$.

$P = 130 - Q$.

$MR = 130 - 2Q$.

We find new equilibrium, where $MR = MC$.

$130 - 2Q = 10$.

$Q = 60$ units.

$P = 130 - 60 = \$70$.

$TR = 70 \cdot 60 = \$4200$.

So, we can see, that monopolist would be better off, because its total revenue increased.

Nevertheless, as the price increased, consumers will pay more, which is not good result of imposing tax either for consumers, or for society.