

**10. Correct. The answer is false.** Only the monopoly profits are incorrect. The monopolist should produce where  $MR - MC - t = 0$   $118.75 - 4Q - 3Q^2 + 50Q - 200 - 2 = -3Q^2 + 46Q - 83.250 = 0$ . Solving with the quadratic formula the two solutions are 2.10 and 13.24. 2<sup>nd</sup> order conditions are  $-6*2.10 + 46 = 33.42 > 0$  (min) and  $-6*13.24 + 46 = -33.42 < 0$  (max). At the max,  $Q = 13.24$ , the price is \$92.28 government revenues would be  $2*13.24 = 26.47$ . Economic profits would be  $P*Q - TC - t*Q = 608.67$  not the 635.15, which does not include a reduction for the tax. Social welfare = consumer surplus + producer surplus + tax =  $(118.75 - 92.28)*13.24*0.5 + 608.675 + 26.474 = 810.36$ .