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a) Cournot competition is an economic model that describes an industrial structure in which competitor enterprises supplying the same product compete on the quantity of output they produce independently and concurrently. Bertrand competition is a type of competition in which two or more businesses manufacture a similar item and compete on price. In theory, if the items are perfect substitutes, price competition will result in enterprises selling their goods at marginal costs and therefore generating zero profits.

b) Bertrand competition often creates an oligopoly in which businesses compete on price. There is a demand directed to each business that is determined by the price set by each firm; let us express it as (p1, p2) and (p1, p2). Bertrand devised the fundamental model in the scenario of a homogeneous good and equivalent businesses with no capacity limitations, and a marginal constant cost equal to c. The unique Nash equilibrium is defined as = = c. Typically, people believe that Bertrand competition is the most difficult level of1 product market rivalry.

Cournot competition often creates an oligopoly in which each business publishes at the same time. It is assumed that an auction market clearing price exists implicitly, and that the selling price is the one that equilibrates demand and produced commodities, and ; we designate it . In the case of a homogeneous good and similar businesses with no capacity restrictions, and a marginal constant cost equal to c, the unique equilibrium is symmetric, so that the corresponding price > c, and the price cost margin decreases as the number of competing firms increases. When n is close to infinity, the price is usually c.

c) Cournot competition with sequential options: Firm A (the leader) selects the output first, followed by Firm B (the follower). With complete knowledge, A is aware of B's profit and optimum response functions. We can predict B's option, = (); Equilibrium output selected to maximize profits given company B's best response.