Double Marginalization

Let's analyze vertical integration in the in-line skate industry. Suppose every skate requires 4 wheels, and the marginal cost of producing the skates itself is zero. The marginal cost of producing a set of 4 wheels is "c". The inverse demand for skates is given by:

$P(Q) = a - bQ$.

a) Suppose both skate and wheel production are vertical integrated and operated by a monopolist. What would the integrated monopoly price of skates be? What would be the profit of this vertically integrated firm?

b) Now assume that the two production processes are not integrated and each industry is monopolized. Let the price of a set of wheels be "***w***". What is the derived demand for wheels faced by the wheel monopolist? What is the profit of the wheel monopoly and the skate monopoly?

c) Suppose that the two production processes are not integrated (as in part b), but the skate industry is perfectly competitive. What is the derived demand for wheels faced by the wheel monopolist? What is the profit of the wheel monopolist? What is the profit of each of the competitive skate firms?

d) Draw a graph to illustrate the situation in part b)

e) Draw a graph to illustrate the situation in part c)