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1. Deskward is a typical profit-maximizing firm that produces and sells wooden desks in a constant-cost, perfectly competitive market that is in long-run equilibrium.

A. Draw correctly labeled side-by-side graphs for the wooden desk market and for Deskward and show each of the following.

i. The market equilibrium price and quantity, labeled P_M and Q_M, respectively

ii. Deskward's profit-maximizing price and quantity, labeled P_F and Q_F, respectively

iii. Deskward's average total cost curve consistent with long-run equilibrium, labeled ATC

B. If the monthly rent, a fixed cost, on Deskward's factory building increases, what will happen to the firm's profit-maximizing quantity in the short run? Explain.

C. Suppose the government is considering granting a per-unit subsidy to producers of wooden desks. On your market graph in part A, show the short-run effect of a per-unit subsidy on each of the following.

i. The new market equilibrium price and quantity of wooden desks, labeled P* and Q*, respectively

ii. The area representing the total cost of the subsidy to the government, shaded completely

D. Instead of the per-unit subsidy, suppose the government imposes a binding price floor in the market for wooden desks. Will the price floor result in a shortage of wooden desks, a surplus of wooden desks, or neither? Explain.

E. Deskward also produces chairs. Deskward increases its production from 500 chairs to 600 chairs, and its long-run total cost increases from $80,000 to $108,000.

i. Calculate Deskward's long-run average total cost of producing 500 chairs. Show your work.

ii. As Deskward increases production from 500 chairs to 600 chairs, is Deskward experiencing economies of scale, diseconomies of scale, or the efficient scale? Explain using numbers.