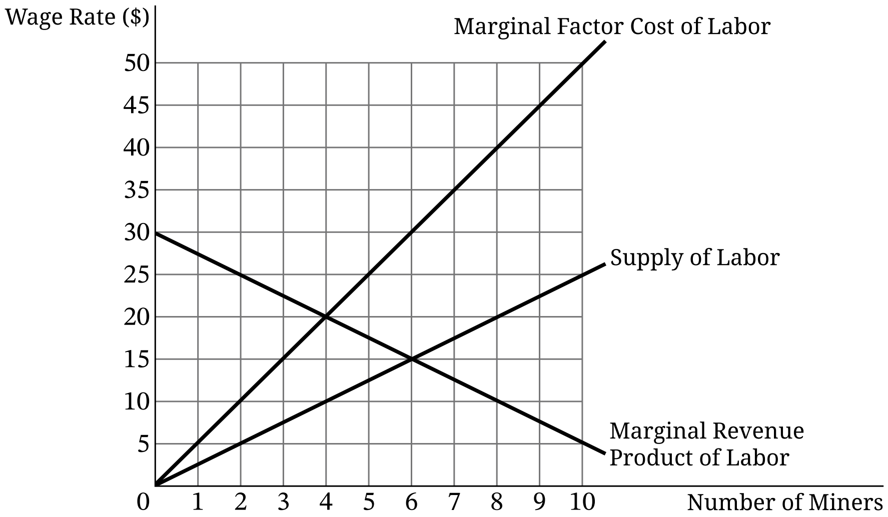
2. Quartz Excavations is a profit-maximizing firm and the only employer of miners of quartz in a small town. The graph provided shows the labor market for miners.



A. Identify Quartz Excavations' profit-maximizing number of miners to hire.

B. Will Quartz Excavations pay its profit-maximizing number of miners a wage rate that is equal to $15, greater than $15, or less than $15? Explain using numbers.

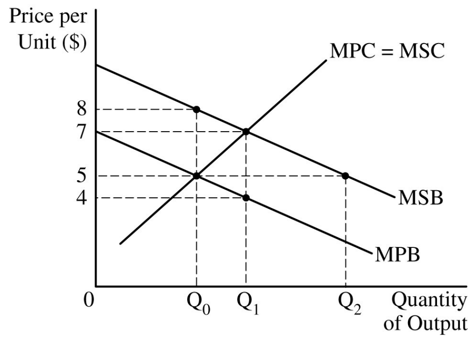
C. Suppose the government sets a minimum wage (a price floor on wages) at $25. Calculate the total wage bill for Quartz Excavations at the resulting profit-maximizing number of miners. Show your work.

D. Suppose that instead of a minimum wage, there is now an increase in the demand for quartz.

i. Will the marginal revenue product of miners increase, decrease, or remain the same? Explain.

ii. After the demand for quartz increases, Quartz Excavations hires the new profit-maximizing number of miners. Will the marginal factor cost of the last miner hired be greater than, less than, or equal to the marginal factor cost of the last miner hired before the demand for quartz increased?

2. Bueno is a firm that produces and sells guava, a type of fruit. The market for guava is perfectly competitive. The marginal private benefit (MPB), marginal private cost (MPC), marginal social benefit (MSB), and marginal social cost (MSC) curves are illustrated in the graph provided.



(a) Identify the kind of market failure represented by this graph.

(b) Using numbers from the graph, identify the marginal external benefit.

(c) Assume the guava market is in short-run equilibrium and Bueno hires workers in a perfectly competitive labor market at a wage of $20 per hour. The marginal product of the last worker hired was 6 units of guava per hour.

(i) Calculate the change in Bueno's profit per hour from the last worker hired. Show your work.
(ii) Suppose that the government decides to provide a per-unit subsidy to consumers who buy guava. How would the per-unit subsidy affect Bueno's marginal revenue product curve? Explain.

(d) Instead of hiring workers in a perfectly competitive labor market, assume Bueno hires workers in a monopsony labor market. Will the number of workers hired increase, decrease, or stay the same? Explain.

Begin your response to this question at the top of a new page in the separate Free Response booklet and fill in the appropriate circle at the top of each page to indicate the question number.