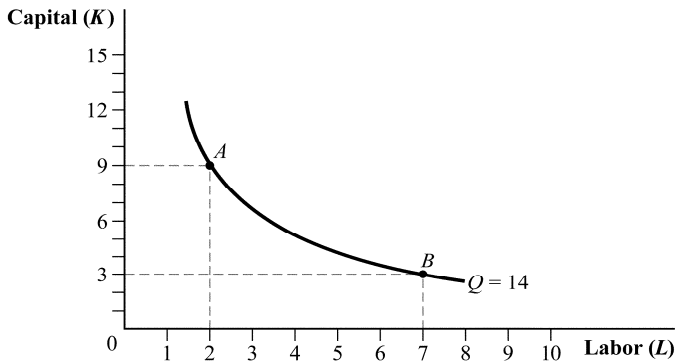


## Quiz #4 -- October 22, 2020

1. A basic assumption of production is that the firm:
  - A) cannot borrow money to finance its input expenditures.
  - B) can buy as much labor and capital as it desires at fixed prices.
  - C) must bid up the prices of labor and capital in order to produce more output.
  - D) has a downward-sloping budget constraint.
  
2. A donut shop has a production function given by  $Q = 100K^{1/3}L^{1/2}$ , where  $Q$  is the number of donuts produced per hour,  $K$  is the number of donut fryers (which is fixed at eight in the short run), and  $L$  is the number of employed workers. How many donuts can be produced per hour with four workers in the short run?
  - A) 333
  - B) 400
  - C) 640
  - D) 168
  
3. Brenda's Pastry employs three workers who produce 6 dozen pastries per hour. After Brenda hires a fourth worker, the number of pastries produced increases to 7 dozen per hour. Because the marginal product of the fourth worker is \_\_\_\_\_ than the average product of three workers the average product must \_\_\_\_\_.
  - A) greater; fall
  - B) less; rise
  - C) greater; rise
  - D) less; fall

Use the following to answer question 4.

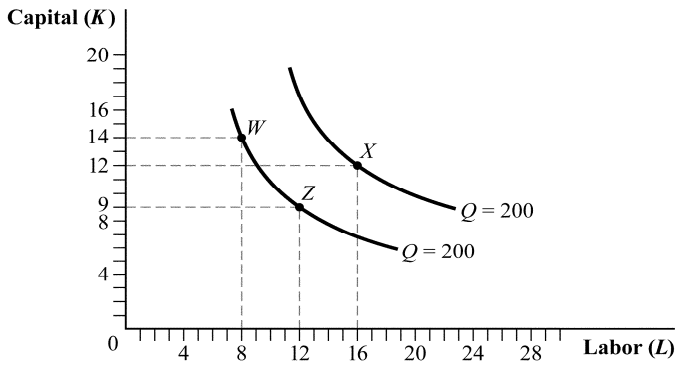
**Figure 6.3**



4. (Figure 6.3) Which of the following statements is (are) TRUE?
- It is easier for a small amount of additional labor to replace a large amount of capital at point  $A$  than at point  $B$ .
  - It is easier for a small amount of additional labor to replace a large amount of capital at point  $B$  than at point  $A$ .
  - The  $MRTS_{LK}$  at point  $A$  equals  $MP_K/MP_L$ .
  - The  $MRTS_{LK}$  at point  $B$  is greater the  $MRTS_{LK}$  at point  $A$ .
5. Suppose a firm with a production function given by  $Q = K^{0.25}L^{0.75}$  produces 1,500 units of output. The firm pays a wage of \$50 per unit and pays a rental rate of capital of \$50 per unit.
- (Note:  $MR_L = \frac{3K^{0.25}}{4L^{0.25}}$ ;  $MP_K = \frac{L^{0.75}}{4K^{0.75}}$  ).
- To minimize the cost of producing 1,500 units of output, the firm should use:
- 3 times as many units of labor as units of capital.
  - equal amounts of labor and capital.
  - 1.25 times as many units of capital as units of labor.
  - 16 units of capital and 6,814 units of labor.
6. The production function given by  $Q = 10(0.7K^2 + 0.3L^2)$  has \_\_\_\_\_ returns to scale.
- constant
  - instant
  - increasing
  - decreasing

Use the following to answer question 7.

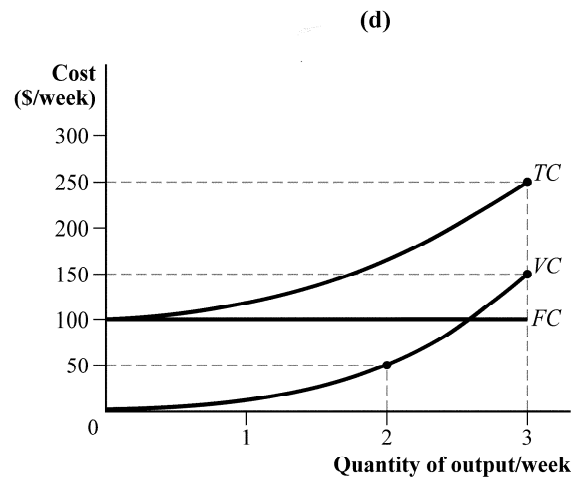
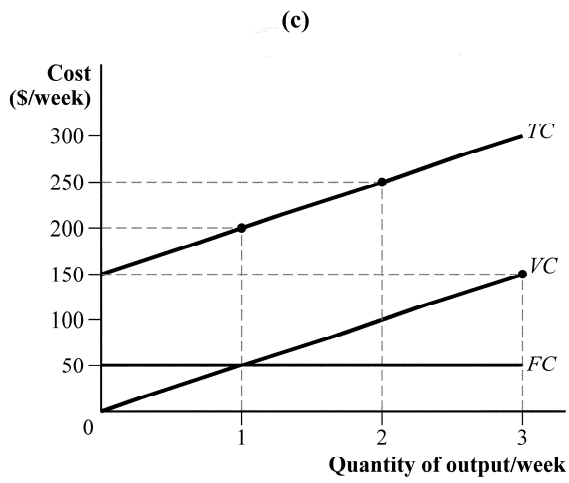
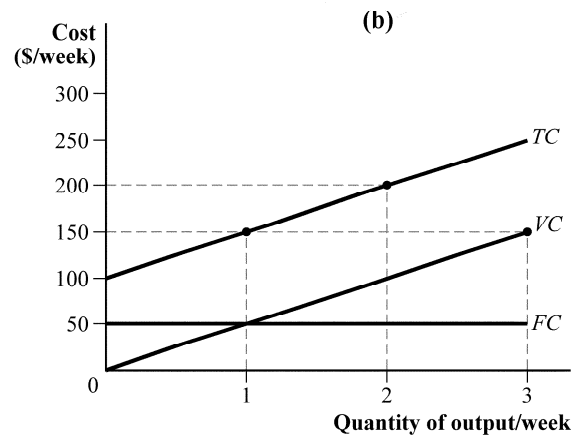
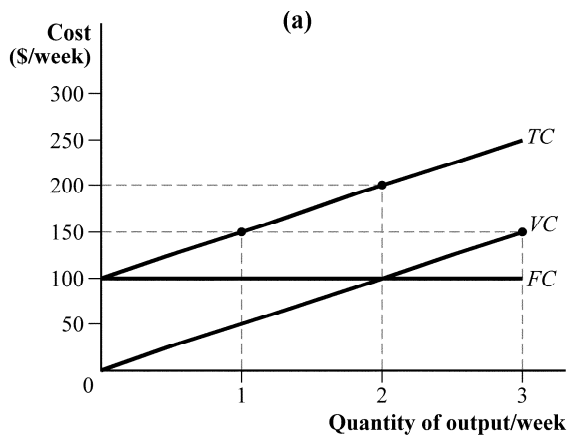
**Figure 6.12**



7. (Figure 6.12) A technological change (improvement) is represented by the movement from point \_\_\_\_\_ to point \_\_\_\_\_.
- A) X; Z
  - B) Z; X
  - C) W; Z
  - D) Z; W
8. Debbie, a popular wedding photographer, is able to photograph a wedding every Saturday of the year. She charges couples \$5,000 for a complete set of photographs that cost her \$2,200 to print and develop. Suppose that on one Saturday Debbie photographs her niece's wedding without charge, but her niece insists on paying Debbie \$2,200 to cover her printing and developing costs. What is Debbie's economic cost of photographing her niece's wedding?
- A) \$0
  - B) \$2,800
  - C) \$3,200
  - D) \$5,000

Use the following to answer question 9.

**Figure 7.2**



9. (Figure 7.2) Consider a firm with the following cost structure:

Quantity of Output	<i>FC</i>	<i>VC</i>	<i>TC</i>
0			100
1		50	
2		100	
3			250

Which panel represents the cost curves of the firm?

- A) panel a
- B) panel b
- C) panel c
- D) panel d

10. Which of the following statements is (are) TRUE?

- I. The firm's total cost is the sum of its fixed and variable costs.
- II. Over the long term, the costs of the firm's inputs tend to become fixed.
- III. In the long run, the firm can adjust the use of all of its inputs.

- A) II
- B) I
- C) I and III
- D) I, II, and III

**Answer Key - F20-4**

1. B
2. B
3. D
4. A
5. A
6. C
7. A
8. B
9. A
10. C