

Key

Bubble in the correct answer to each question on your BROWN scan-tron sheet. Write your name LEGIBLY on the scan-tron sheet, then find your form code at the top right corner of this page. Write the form code on your scan-tron sheet. You will turn in the scan-tron sheet, and keep this quiz sheet for your records.

1. Find the partial derivative of the following function with respect to x :

$$g(x, y, z) = 4x^2y + 2xy^2z + 3z^4$$

$$\frac{\partial g}{\partial x} = 8xy + 2y^2z$$

- (a) $4x^2 + 4xyz$
(b) $8xy + 2y^2z$
(c) $2xy^2 + 12z^3$
(d) This function cannot be differentiated with respect to x alone
(e) None of these
2. For the following production function, find the value of marginal productivity of capital, $\partial P / \partial K$, when $K = 9$ and $L = 16$.

$$P = 6L^{0.5}K^{0.5}$$

$$\frac{\partial P}{\partial K} = 3L^{0.5}K^{0.5-1}$$

$$= 3L^{0.5}K^{-0.5}$$

$$= \frac{3L^{0.5}}{K^{0.5}}$$

$$= \frac{3(16)^{0.5}}{(9)^{0.5}} = \frac{3 \cdot 4}{3} = \frac{12}{3} = 4$$

- (a) $\frac{9}{2}$
(b) 4
(c) $\frac{4}{3}$
(d) $\frac{9}{4}$
(e) None of these
3. The McGuire Sisters are a hit singing group consisting of Dorothy, Phyllis, and Christine. Suppose they want to create a recording studio and name it by their three first names. How many names for the recording studio are possible?

- (a) 12
(b) 9
(c) 6
(d) 4
(e) None of these

$${}_3P_3 = 3! = 3 \times 2 \times 1 = 6$$

4

Key

Quiz #9
ECO 3401
Dr. Gerking

Bubble in the correct answer to each question on your BROWN scan-tron sheet. Write your name LEGIBLY on the scan-tron sheet, then find your form code at the top right corner of this page. Write the form code on your scan-tron sheet. You will turn in the scan-tron sheet, and keep this quiz sheet for your records.

1. The McGuire Sisters are a hit singing group consisting of Dorothy, Phyllis, and Christine. Suppose they want to create a recording studio and name it by their three first names. How many names for the recording studio are possible?

- (a) 6
(b) 12
(c) 4
(d) 9
(e) None of these

$${}_3P_3 = 3! = 3 \times 2 \times 1 = 6$$

2. Find the partial derivative of the following function with respect to y :

$$g(x, y, z) = 4x^2y + 2xy^2z + 3z^4$$

$$\frac{\partial g}{\partial y} = 4x^2 + 4xyz$$

- (a) $4x^2 + 4xyz$
(b) $8xy + 2y^2z$
(c) $2xy^2 + 12z^3$
(d) This function cannot be differentiated with respect to y alone
(e) None of these

3. For the following production function, find the value of marginal productivity of labor, $\partial P / \partial L$, when $K = 9$ and $L = 16$.

$$P = 6L^{0.5}K^{0.5}$$

$$\frac{\partial P}{\partial L} = 3L^{0.5-1}K^{0.5}$$

$$= 3L^{-0.5}K^{0.5}$$

$$= \frac{3K^{0.5}}{L^{0.5}}$$

$$= \frac{3(9)^{0.5}}{(16)^{0.5}} = \frac{3 \cdot 3}{4} = \frac{9}{4}$$

- (a) $\frac{9}{2}$
(b) 36
(c) $\frac{4}{3}$
(d) $\frac{9}{4}$
(e) None of these