

MCQ1: Identify the generalized power function rule in differentiation if  $y = Mx^n$   
Answer:  $n(M)x^{n-1}$

MCQ2: Solve the function  $y = \frac{1}{x^4}$  using the rule of differentiation  
Answer:  $-\frac{4}{x^5}$

MCQ3: If  $y = \pi$ , where  $\pi$  is 3.142. Differentiate the function  
Answer: 0

MCQ4: If the dependent variable is Y and the independent variable is x, find the derivative of the equation  $p = 7q^4 - 3q^3$   
Answer:  $28q^3 - 9q^2$

MCQ5: What is the  $f'(x)$  of  $100 + \frac{1}{4}x$   
Answer:  $\frac{1}{4}$

MCQ6: Differentiate the  $\frac{d}{dx}$  of  $x^{\frac{2}{4}}$   
Answer:  $\frac{1}{2}x^{-\frac{1}{2}}$

MCQ7: Use one of the rules of differentiation to solve the equation  $y = 5x^4 \ln(3x - 7)$   
Answer:  $75x^4 - 140x^3$

MCQ8: Given  $y = \frac{8}{x}$ , solve by finding its derivative  
Answer:  $-8x^{-2}$

MCQ9: Find the derivative of the equation  $y = \ln(-12x^2)$   
Answer:  $-24x$

MCQ10: The concept of Derivative is about \_\_\_\_  
Answer: Rate of change

MCQ11: If  $y = \ln(-12x^2)$ , differentiate it using one of the rules of Differentiation.  
Answer:  $-24x$

MCQ12: Differentiation is a primitive function in calculus  
Answer: FALSE

MCQ13: What President Obama did by tracing his origin to Kenya can be likened to \_\_\_\_ in calculus  
Answer: Integration

MCQ14: The concept of Integration is about \_\_\_\_  
Answer: area under the curve

MCQ15: If  $\frac{1}{7}x^7$  is  $x^6$  using differentiation,  $\frac{1}{7}x^7$  is known as \_\_\_\_  
Answer: primitive function

MCQ16:  $\int x^n dx = \frac{1}{n+1}x^{n+1} + C$  in the rules integration is called  $\hat{A}$   
Answer: power function rule  $\hat{A}$

MCQ17: Solve the derivative function  $[x^6]$ , using the rule of integration  $\hat{A}$   
Answer:  $[\frac{1}{7}x^7 + dx]$   $\hat{A}$

MCQ18: Identify the correct integration notation for  $[y = \sqrt{x^3}]$   $\hat{A}$   
Answer:  $[\int \sqrt{x^3} dx]$   $\hat{A}$

MCQ19: Use constant rule of integration, evaluate  $[\int 1000 dx]$   $\hat{A}$   
Answer:  $[1000x + C]$   $\hat{A}$

MCQ20: Compute the integral function  $[\int_3^8 6x]$   $\hat{A}$   
Answer: 165

MCQ21: Determine the under the curve of the function  $[\int_0^{20} \frac{1}{2} x dx]$   $\hat{A}$   
Answer: 100  $\hat{A}$

MCQ22: If  $[q = 3p^2 - 14p + 5]$ , where  $[p = 4]$ , solve the equation to determine the functional form of the equation.  $\hat{A}$   
Answer: Increasing  $\hat{A}$

MCQ23: Solve to identify the nature of the function  $[y = z^3 - 7z^2 + 6z - 2]$ , when  $[z = 4]$   $\hat{A}$   
Answer: Decreasing  $\hat{A}$

MCQ24: Solve equation  $[y = x^4 - 6x^3 + 4x^2 - 13]$  when  $[x = 4]$ , and describe the state of the function.  $\hat{A}$   
Answer: Stationary  $\hat{A}$

MCQ25: When the first derivative of an economic model is zero or undefined, the model is therefore \_\_\_\_  $\hat{A}$   
Answer: Critical  $\hat{A}$

MCQ26: In an economic equation where a single variable impact the endogenous variable is called \_\_\_\_  $\hat{A}$   
Answer: a parameter function  $\hat{A}$

MCQ27: Find the partial derivative of the function,  $[h(p,n) = 10p^3 + 6pn^2 + 7n^3]$  w.r to p.  $\hat{A}$   
Answer:  $[30p^2 + 6n^2]$   $\hat{A}$

MCQ28: Determine the second derivative of function,  $[q = p^{0.7}i^{0.3}]$  w.r to i  $\hat{A}$   
Answer:  $[-0.21p^{0.7}i^{-\frac{1}{3}}]$   $\hat{A}$

MCQ29: A column matrix is also known as \_\_\_\_ matrix  $\hat{A}$   
Answer:  $[m \text{ by } 1]$   $\hat{A}$

MCQ30: The transpose of matrix  $\begin{pmatrix} -3 & 5 & 6 \\ 8 & -7 & 4 \end{pmatrix}$  is transformed to give matrix dimension \_\_\_\_  
Answer:  $3 \times 2$

MCQ31: Find the product of the matrices  $ABA = 472$   $B = 1215$   
Answer: 65

MCQ32: Find the Total Value of Sales (TVS), if Y is row vector of quantities of Biro, Rulers and Pencils respectively, and Z is a column vector of the corresponding prices of the goods.  $Y = 2086$   $Z = 1.502.300.75$   
Answer: #52.29

MCQ33: Cramer's rule for matrix solution states that \_\_\_\_  
Answer:  $x = A^{-1}b$

MCQ34: \_\_\_\_ is used to convert a constrained extremum problem into a form that can be resolved  
Answer: Lagrangian Multiplier

MCQ35: If  $A = 050622713$ , find  $A^{-1}$   
Answer: -20

FBQ1: The difference between the definite and the indefinite integral is that, \_\_\_\_  
Answer: definite integral has limits

FBQ2: Using one of the rules of integration, an evaluation of  $\int 9e^{-3x} dx$  is \_\_\_\_  
Answer:  $-3e^{-3x} + C$

FBQ3: If demand function is  $p = 40 - 8q$ , the marginal revenue (MR) of the function will be \_\_\_\_  
Answer:  $40 - 8q$

FBQ4: The derivative of any power function is determined by multiplying the coefficient of the function by the \_\_\_\_  
Answer:  $n$

FBQ5: A function that is to the power of one is termed a \_\_\_\_ function.  
Answer: Linear

FBQ6: An evaluation of the marginal expenditure of  $p = Q^3 + 4Q + 3$  equals to \_\_\_\_  
Answer:  $4Q^2 + 4$

FBQ7: The marginal propensity to consume (MPC) of the equation  $C = 1000 + 0.88y$  is \_\_\_\_  
Answer:  $0.88$

FBQ8: A matrix with all its elements as zero is termed a \_\_\_\_ matrix

Answer: Zero

FBQ9: If MPC is 0.6, and consumption is 85, the consumption function 'C' is \_\_\_\_

Answer:  $[0.6y+85]$

FBQ10: If Marginal cost (MC) is  $[\frac{dTC}{dQ}]$ , the total cost (TC) shall be \_\_\_\_

Answer:  $[\int MCdQ=VC+C]$

FBQ11: Study the function carefully:  $F(x, y, \lambda)$  is the \_\_\_\_

Answer: Lagrange function

FBQ12: Study the function, the \_\_\_\_

Answer: Objective function

FBQ13: In the same function, is the \_\_\_\_

Answer: Constraint function

FBQ14: If  $g = 4w^3 + 10wxy^3 - y^2 + x^4$ . With respect to  $x$ , the partial derivative of this function is \_\_\_\_

Answer:  $10wy^3 + 4x^3$

FBQ15: Two matrices are equal if they possess the same \_\_\_\_

Answer: Dimension

FBQ16: A matrix where the number of rows equal the number of columns is known as \_\_\_\_

Answer: square matrix

FBQ17: When the substitution method becomes useless as a result constraint, \_\_\_\_ becomes effective.

Answer: Lagrange multiplier

FBQ18: In matrix operation, any matrix of 2 by 3 order means \_\_\_\_

Answer: 2 rows and 3 columns

FBQ19: When the second derivative of any function equals zero, the \_\_\_\_ occurs

Answer: inflection point

FBQ20: The first among the rules of differentiation is the \_\_\_\_

Answer: Constant rule

FBQ21: Use Lagrange multiplier to optimize  $q = -8x^2 - 4xy + -12y^2$  subject to  $x + y = 36$ . Therefore,  $q = -8x^2 - 4xy + -12y^2 + \lambda(36 - x - y)$ . The value of  $\lambda$  is \_\_\_\_

Answer: 15

FBQ22: Use Lagrange multiplier to optimize  $q = -8x^2 - 4xy + -12y^2$  subject

to  $x + y = 36$ . Therefore,  $q = -8x^2 - 4xy - 12y^2 + 46(36 - x - y)$ .&nbsp; the value of  $x$  in the equation is \_\_\_\_  
Answer: 21

FBQ23: Given that  $q = 5p + 45$ , find the derivative of  $q^{-1}$   
Answer:  $1/5$

FBQ24: A rectangular array of numbers, parameters, or variables is known as a \_\_\_\_  
Answer: Matrix

FBQ25: The Marginal Revenue (MR) of the function  $Q = 46 - 2p$  is \_\_\_\_  
Answer:  $23 - Q$

FBQ26: The derivative of a constant function like  $p = k$ , or  $f(t)$  is \_\_\_\_  
Answer: Zero

FBQ27: The \_\_\_\_ derivative measures the direct effect of  $p$  on  $q$ , plus the indirect influence of  $p$  on  $q$  through  $i$ ,&nbsp;  
Answer: Total

FBQ28: From the consumption function  $C = 2500 + 0.75Y_d$ , the Marginal Propensity to Consume (MPC) is \_\_\_\_  
Answer: 0.75

FBQ29: The Marginal Propensity to Save (MPS) is \_\_\_\_ given the consumption function in question 28.  
Answer: 0.25

FBQ30: \_\_\_\_ measure the rate of change in the endogenous variable occasioned by a little change in the individual exogenous variables  
Answer: Total differentials

FBQ31: Given the Average Cost function  $AC = 2.5Q + 6 + 56/Q$ , the Marginal Cost (MC) is \_\_\_\_  
Answer:  $5Q + 6$

FBQ32: \_\_\_\_ is used to convert a constrained extremum problem into a form that can be resolved  
Answer: Lagrange multiplier

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FBQ34: If  $MC = 70 + 90Q - 30Q^2$ , and fixed cost is 100. The TC equation from the MC function is \_\_\_\_  
Answer:  $70Q + 45Q^2 - 10Q^3 + 100$

FBQ35: The value of TC is X in absolute term when Q is  
5. What is X?  
Answer: #325.00

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