

FBQ1: Differentiation measures _____

Answer: *Rate of Change*

FBQ2: $(a+b) = (b+a)$ Satisfies the _____ law of matrix

Answer: *Commutative*

FBQ3: Given that $y = 7x^3$, the derivative is _____

Answer: $*21x^2*$

FBQ4: If the difference function is $p=15q^3-3q^4$, dp/dq is _____

Answer: $*45q^2-12q^3*$

FBQ5: Given that $q = 5p + 45$, the inverse derivative of the function is _____

Answer: $*1/5*$

FBQ6: Given that $q = p^5 + p$, find the inverse derivative of the function is

Answer: $*5p^4+1*$

FBQ7: Given that $q = p^5 + p$, find the inverse derivative of the function

Answer: $*5p^4+1*$

FBQ8: If $y = x^4$, dy/dx is _____

Answer: $*4x^3*$

FBQ9: If the function is given as $f(j) = 20j - 10$, the rate of change is

Answer: $*20*$

FBQ10: Find the 5th derivative of the function $y = 4x^4 + 7x^3 + 2x^2$ is

Answer: $*0*$

FBQ11: Suppose we have an equation of the form $q = 4p^3 + p^2 + 20$, _____ is the 1st derivative

Answer: $*12p^2 + 2p*$

FBQ12: Suppose we have an equation of the form $q = 4p^3 + p^2 + 20$, _____ the 2nd derivative

Answer: $*24p + 2*$

FBQ13: Suppose we have an equation of the form $q = 4p^3 + p^2 + 20$, _____ the 3rd derivative

Answer: $*24*$

FBQ14: Differentiation is a primitive function in calculus. True or False

Answer: *False*

FBQ15: _____ is the Integrate of $\int x dx$

Answer: $x^2/2$

FBQ16: _____ is the Integrate the function of $\int 6x dx$

Answer: $*6\ln x + c*$

FBQ17: The computed function of $\int 3x^3-x+2dx$ is $3/4x^4-1/2x^2+2x+c$

Answer: $*2x + c*$

FBQ18: _____ is the determined and evaluated marginal gain function of the profit function $\pi = Q^2 -16Q + 50$ at $Q = 4$

Answer: $*-8*$

FBQ19: _____ is the determined and evaluated marginal gain function of the

profit function $\pi = Q^2 - 16Q + 50$ at $Q = 6$

Answer: *-4*

FBQ20: _____ is the determined and evaluated marginal expenditure of the function $P = Q^3 + 4Q + 3$ at $Q = 4$

Answer: *332*

FBQ 21: _____ is the determine and evaluate marginal expenditure of the function $P = Q^3 + 4Q + 3$ at $Q = 7$

Answer: *2618*

FBQ22: If the total consumption function is $C = 1000 + 0.88Y$, _____ is the marginal propensity to consume (MPC).

Answer: *0.88*

FBQ23: If the total consumption function is $C = 50 + 0.2Y$, _____ is the marginal propensity to consume (MPC).

Answer: *0.2*

FBQ24: Assuming that marginal cost (MC) is $50 + 60Q - 18Q^2$, if fixed cost is 75; _____ the total cost (TC).

Answer: * $50Q + 30Q^2 - 6Q^3$ *

FBQ25: Given that $g = -2x^3 + 4x^2 + 9x - 15$, _____ is gf

Answer: *- $6x^2 + 8x + 9$ *

FBQ 26: If $g = -2x^3 + 4x^2 + 9x - 15$, at $x = 3$, the test is _____

Answer: *Concave*

FBQ 27: Given that $g = (5x^2 - 8)^2$, at $x = 3$, the test is _____

Answer: *Convex*

FBQ 28: The graph and relation are not the right tools to solve optimality problems, except method of _____

Answer: *Relative extreme*

FBQ 29: In the theory of production given as $Q = g(L, K)$, Q is said to be an _____ variable

Answer: *Endogenous*

FBQ 30: In the theory of production given as $Q = g(L, K)$, L and K are said to be _____ variables

Answer: *Exogenous*

FBQ 31: The partial derivative of a two-variable function such as $Z = 5x^2y^4$ with respect to x is _____

Answer: * $10xy^4$ *

FBQ32: The partial derivative of a two-variable function such as $Z = 5x^2y^4$ with respect to y is _____

Answer: * $20x^2y^3$ *

FBQ33: One of the ways through which constrained problem organisation can be resolved is _____

Answer: *Substitution of variable*

FBQ34: One of the ways through which constrained problem organisation can be resolved is _____

Answer: *Substitution of variable*

FBQ35: When there are several constraints to be considered, the methods of substitution and elimination of variables become ineffective and _____ method become the best

Answer: *Lagrange multiplier*

FBQ36: Partial differentiation will no longer be effective when _____
endogenous variables are involved
Answer: *Two*

FBQ37: A matrix is a _____
Answer: *rectangular array of numbers*

FBQ38: _____ is one in which there exists linear dependence between at least two rows or columns
Answer: *Singular matrix*

FBQ39: The numbers (parameters or variables) are called _____
Answer: *Elements*

FBQ40: When the rows and columns of a matrix are the same or equal, the matrix is _____
Answer: *Square matrix*

FBQ41: If the determinant of matrix is not equal to zero, it is said to be _____
Answer: *Non-singular*

FBQ42: In determining the derivatives of an implicit function of X, _____ basic steps are considered
Answer: *3*

FBQ43: If $a=52$ $b=69$ ab _____
Answer: *|48|*

FBQ 44: Special forms of matrix that has its feature direction and magnitude are _____
Answer: *Vectors*

FBQ 45: A square matrix with 1s in its principal diagonal from left to right and 0s everywhere else is _____
Answer: *Identity Matrix*

FBQ 46: _____ is the determinant of $\begin{vmatrix} 1 & 2 & 8 & 1 & 4 & 1 & 8 \end{vmatrix}$
Answer: *104*

FBQ47: Given $Y = \begin{vmatrix} 8 & 1 & 2 & 1 & 2 & 1 & 8 \end{vmatrix}$ Y is _____
Answer: *0*

FBQ48: Given $Y = \begin{vmatrix} 8 & 1 & 2 & 1 & 2 & 1 & 8 \end{vmatrix}$ Y is _____
Answer: *0*

FBQ49: Given $X = \begin{vmatrix} 4 & 1 & 5 & 6 & 2 & 3 & 2 & 3 & 1 \end{vmatrix}$ X is _____
Answer: *42*

FBQ50: The integral sum of difference of two or more functions is the sum or difference of the individual integral. True or False?
Answer: *True*

Multiple Choice Questions (MCQs):

MCQ1: The concept of derivative is mainly concerned with
Answer: Rate of change

MCQ2: An important feature of a linear graph is its
Answer: Line

MCQ3: The concept of differentiation measures
Answer: Line

MCB4: The following are the rules of differentiation except

Answer: Sum or difference

MCB5: Given the function $y = x + y = 0$, which rule can be used to solve the function?

Answer: Sum or difference

MCQ6: Given that $p = 12$, find dp/dx

Answer: 21

MCQ7: Find the derivative of the function $f(x) = 5x - 3$

Answer: 5

MCQ8: Determine the derivative of $(2k^4 + 5)(3k^5 - 8)$

Answer: $54k^3 + 75k^4$

MCQ9: If $y = 2x^2 + 7x - 18$, write the derivative of the equation

Answer: $dy/dx [2x^2 + 7x - 18]$

MCQ10: Find the derivative of the function $y = 4x^2 + 6x^3$

Answer: $8x + 18x^2$

MCQ11: If given the function $y = (3x + 2)(4x^3)$, determine the derivative using product rule

Answer: 48

MCQ12: If $y = (x^2 + 5x)^2$ where $y = u^2$ and $u = x^2 + 5x$. Differentiate the function using chain rule

Answer: $(2x + 5)$

MCQ13: Assuming we have the function $y^3 - 2x^2y^2 + x^4 = 0$. Find dy/dx

Answer: $4x(y^2 - x^2)y(3y - 4x^2)$

MCQ14: To determine the initial function of an equation, economist uses

Answer: Matrix

MCQ15: The integration function which dependent on a single variable and have no precise numerical value is known as

Answer: Finite Integral

MCQ16: Integrate $\int x^6 dx$

Answer: $\frac{1}{7}x^7 + c$

MCQ17: Marginal _____ is defined as the change in total revenue as a result of change in the sale of an additional unit of a particular product

Answer: Product

MCQ18: Graph and relation are not the right tools to solve _____ problems

Answer: Optimality

MCQ19: Determine the initial functions of $\int 3x^2 dx$

Answer: $x^3 + c$

MCQ20: Compute the integral $\int (x+2)^3 dx$

Answer: $\frac{1}{4}(x+2)^4 + c$

MCQ21: Compute the integral $\int 274x^3 dx$

Answer: $2790x^4$

MCQ22: Compute the integral $\int 0.2(11+x+2x) dx$

Answer: $\ln 3 + 4$

MCQ23: If the total cost function $TC = 5Q^2 + 7Q + 20$, find the marginal function and evaluate it at $Q = 6$

Answer: 60

MCQ24: Determine and evaluate the marginal gain function of the profit function $Q^2 + 16Q + 50$ at $Q=6$

Answer: 4

MCQ25: Find the total revenue function given that marginal revenue (MR) is $40 - 4Q + Q^3$

Answer: $40Q - 2Q^2 + \frac{1}{4}Q^4$

MCQ26: Assuming we have a consumption function (C) which is $600 + 0.4Y_d$, where Y_d is $Y - T$, and T is 200, find marginal propensity to consume (MPC)

Answer: 0.4

MCQ27: Find the marginal revenue (MR) function of the demand function $Q = 72 - 4p$

Answer: $72 - 2p$

MCQ28: Find the partial differential of the function $z=7x^3+3x^2y^2+6y^4$ with respect to y

Answer: $-6x^2+14y^3$

MCQ29: Find the partial differential of the function $z=7x^3+3x^2y^2+6y^4$ with respect to x

Answer: $21x^2+6xy^2$

MCQ30: Find the partial differential of the function $z=7x^3+3x^2y^2+6y^4$ with respect to x

Answer: $21x^2+6xy^2$

MCQ31: Partially differentiate the model $z=5x+2(4x+3y)$ with respect to y

Answer: $15x+6$

MCQ32: Partially differentiate the model $z=5x+2(4x+3y)$ with respect to x

Answer: $40x+8+15y$

MCQ33: Assuming we have the function $q = 5p^3 + 4p^2 + 20$, find the differentials?

Answer: $15p^2+8p$

MCQ34: Find the derivative of the implicit function: $14x^2+2y=0$

Answer: $-14x$

MCQ35: Find the derivative for the inverse of the function $Q = 80 - 5P$

Answer: 15

MCQ36: Find the derivative for the inverse of the function $y = 1000-3x^2$

Answer: $-16x$

MCQ37: Given that $a=11435$ $b=8213$ find $a + b$

Answer: 19535

MCQ38: Given that $a=11435$ $b=8213$ find $a - b$

Answer: 3035

MCQ39: Given that $a=910115714$ $b=2146$

Answer: 9015730159

MCQ40: Given that $a=584693$ $b=122311$

Answer: 12231169

MCQ41: Given that $a=584693$ $b=122311$

Answer: 763569

MCQ42: If $Z=0$, the matrix is singular and there is linear dependence among the

equations. Therefore, solution is _____

Answer: Known

MCQ43: If $Z \neq 0$, the matrix is non-singular and there is linear dependence among the equations. Therefore, the matrix is _____

Answer: Solvable

MCQ44: _____ satisfies the commutative law of matrix

Answer: $(a + b) = (b + a)$

MCQ45: _____ if not a scalar matrix, does not satisfy the commutative law

Answer: $ab=ba$

MCQ46: $(a+b) = (b+a)$ satisfies the _____ law of matrix

Answer: Sum and difference

MCQ47: $(a+b) = (b+a)$ satisfies the _____ law of matrix

Answer: Sum and difference

MCQ 48: Special forms of matrix that has its feature direction and magnitude are _____

Answer: Column

MCQ49: The determinant of 10858 is _____

MCQ50: The determinant is a scalar and is found only for _____ matrices

Answer: Square