

ECO256 List of Questions

Latex formatted questions may not properly render

Q1 The concept of Derivative is about ____

- ☐ Notations
- ☐ Antiderivative
- ☐ Primitive functions
- ☐ Rate of change

Q2 Find the derivative of the equation $y = \left(-12x^2 \right)$

- ☐ $24x$
- ☐ $-24x$
- ☐ $12x^2$
- ☐ $12x^{-2}$

Q3 Given $y = \frac{8}{x}$, solve by finding its derivative

- ☐ $-8x^{-2}$
- ☐ $\frac{8}{x^2}$
- ☐ $8x^{-2}$
- ☐ $-8x^2$

Q4 Use one of the rules of differentiation to solve the equation $y = 5x^4 \left(3x - 7 \right)$

- ☐ $75x^3 - 140x^2$
- ☐ $75x^3 + 140x^2$
- ☐ $75x^4 + 140x^3$
- ☐ $75x^4 - 140x^3$

Q5 Differentiate the $\frac{dx}{dy}$ of $x^{\frac{2}{4}}$

- ☐ $\frac{1}{2} x^{\frac{1}{2}}$
- ☐ $\frac{1}{2} x^{-1}$
- ☐ $\frac{1}{2} x^{-\frac{1}{2}}$
- ☐ $\frac{1}{4}$

Q6 What is the $\frac{d}{dx} \left(x \right)$ of $100 + \frac{1}{4}x$

- ☐ $\frac{1}{4}$
- ☐ $100\frac{1}{4}x$
- ☐ $6\frac{1}{2}x$
- ☐ $100.025x$

Q7 If the dependent variable is Y and the independent variable is x, find the derivative of the equation $p = 7q^4 - 3q^3$

- ☐ $4q$
- ☐ $4q^7$
- ☐ $10q$
- ☐ $28q^3 - 9q^2$

Q8 If $y = \pi$, where π is 3.142. Differentiate the function

- ☐ 0
- ☐ 3.1
- ☐ 2
- ☐ 0.5

Q9 Solve the function $y = \frac{1}{x^4}$ using the rule of differentiation

- ☐ $\frac{4}{x^5}$
- ☐ $\frac{-4}{x^5}$
- ☐ x^{-4}
- ☐ $\frac{4}{x^{-5}}$

Q10 Identify the generalized power function rule in differentiation if $y = Mx^n$

- ☐ $n(M)x^n$
- ☐ $m(N)x^{m-1}$
- ☐ $n(M)x^{n-1}$
- ☐ $m(N)x^{m+1}$

Q11 Compute the integral function $\int_3^8 6x \, dx$

- ☐ $\int 6x \, dx$
- ☒ 165
- ☐ 11
- ☐ 24

Q12 Use constant rule of integration, evaluate $\int 1000 \, dx$

- ☐ $\int 1000 \, dx$
- ☐ $\int 1000 \int dx$
- ☒ $\int 1000x + C$
- ☐ $\int 1000 \int dx + C$

Q13 Identify the correct integration notation for $y = \sqrt{x^3}$

- ☐ $\int \sqrt{x^3} + C$
- ☐ $\int \sqrt{x^3} \int + C$
- ☐ $\int \sqrt{x^3} \int dx$
- ☒ $\int \sqrt{x^3} \, dx$

Q14 Solve the derivative function x^6 , using the rule of integration

- ☐ $\frac{1}{7} x^7$
- ☒ $\frac{1}{7} x^7 + C$
- ☐ $\frac{1}{7} x^7 + dx$
- ☐ $\frac{1}{7} x^7 \int dx$

Q15 $\int x^n \, dx = \frac{1}{n+1} x^{n+1} + C$ in the rules integration is called

- ☒ power function rule
- ☐ constant function rule
- ☐ exponential function rule
- ☐ natural function rule

Q16 If $\frac{1}{7} x^7$ is x^6 using differentiation, $\frac{1}{7} x^7$ is known as

- ☐ index function
- ☒ primitive function
- ☐ static function
- ☐ forward function

Q17 The concept of Integration is about

- ☐ resolution of vector
- ☐ movement forward
- ☒ area under the curve
- ☐ differentiation

Q18 What President Obama did by tracing his origin to Kenya can be likened to ____ in calculus

- ☒ Integration
- ☐ Differentiation
- ☐ Index function
- ☐ Static function

Q19 Differentiation is a primitive function in calculus

- ☐ TRUE
- ☐ UNSURE
- ☐ INDIFFERENCE
- ☒ FALSE

Q20 If $y = \left(-12x^2 \right)$, differentiate it using one of the rules of Differentiation.

- ☐ -24
- ☒ $-24x$
- ☐ $24x^3$
- ☐ 0

Q21 In matrix operation, a matrix of 3 by 2 dimension is interpreted as ____

- ☒ 3 rows, 2 columns

- ☐ 2 rows, 3 columns
- ☐ 2 rows, 2 columns
- ☐ 3 rows, 3 columns

Q22 Solve equation $y = x^4 - 6x^3 + 4x^2 - 13$ when $x = 4$, and describe the state of the function.

- ☐ Increasing
- ☐ Falling
- ☐ None
- ☐ Stationary

Q23 Solve to identify the nature of the function $y = z^3 - 7z^2 + 6z - 2$, when $z = 4$

- ☐ Decreasing
- ☐ Increasing
- ☐ Flat
- ☐ Asymptotic

Q24 If $q = 3p^2 - 14p + 5$, where $p = 4$, solve the equation to determine the functional form of the equation.

- ☐ Decreasing
- ☐ Static
- ☐ Increasing
- ☐ Asymptotic

Q25 Determine the under the curve of the function $\int_0^{20} \frac{1}{2} x dx$

- ☐ 0
- ☐ 20
- ☐ $\int_0^{20} \frac{1}{2} x dx + C$
- ☐ 100

Q26 Compute the integral function $\int_3^8 6x$

- ☐ $\int 6x du$
- ☐ 165
- ☐ 11
- ☐ 24

Q27 Use constant rule of integration, evaluate $\int 1000 dx$

- ☐ $\int 1000 dx$
- ☐ $\int 1000 \int dx$
- ☐ $\int 1000x + C$
- ☐ $\int 1000 \int dx + C$

Q28 Identify the correct integration notation for $y = \sqrt{x^3}$

- ☐ $\int \sqrt{x^3} + C$
- ☐ $\sqrt{x^3} \int + C$
- ☐ $\sqrt{x^3} \int dx$
- ☐ $\int \sqrt{x^3} dx$

Q29 Solve the derivative function x^6 , using the rule of integration

- ☐ $\frac{1}{7} x^7$
- ☐ $\frac{1}{7} x^7 + C$
- ☐ $\frac{1}{7} x^7 + dx$
- ☐ $\frac{1}{7} x^7 \int dx$

Q30 $\int x^n dx = \frac{1}{n+1} x^{n+1} + C$ in the rules integration is called

- ☐ power function rule
- ☐ constant function rule
- ☐ exponential function rule
- ☐ natural function rule

Q31 If M marginal cost (MC) $= \frac{dTC}{dQ}$, what is total cost (TC)

- ☐ $\int MC dQ = C + FC$
- ☐ $\int MC dQ = VC + C$
- ☐ $\int MC dQ = C$
- ☐ $\int MC dQ = VC$

Q32 If MPC is 0.6, and consumption is 85, determine the consumption function 'C'

- ☐ $[0.4y+85]$
- ☐ $[0.4y+85+C]$
- ☐ $[0.6y+85]$
- ☐ $[\int 0.4y+85dx]$

Q33 Use the result in question '7', determine marginal propensity to save (MPS)

- ☐ $[0.88dx]$
- ☐ $[0.12dx]$
- ☐ $[0.12\int dx]$
- ☐ $[0.12]$

Q34 What is the marginal propensity to consume (MPC), if $[C=1000+0.88y]$

- ☐ $[0.12]$
- ☐ $[\int 1000+0.88dx]$
- ☐ $[\int 1000+0.12dx]$
- ☐ $[0.88]$

Q35 Evaluate the marginal expenditure of $[p=Q^3+4Q+3]$

- ☐ $[4Q^3+8Q+3dx]$
- ☐ $[4Q^3+8Q+3]$
- ☐ $[\int 4Q^3+8Q+3]$
- ☐ $[4Q^3+8Q+3\int dx]$

Q36 What is the value of total revenue (TR) using the information in questions '3' and '4' ?

- ☐ $[\#8]$
- ☐ $[\#90]$
- ☐ $[\#96]$
- ☐ $[\int 96dx]$

Q37 If q is 4, determine the value of the MR using the outcome in question '3'

- ☐ $[40-8q+c]$
- ☐ $[40-8qdx]$
- ☐ $[\#8]$
- ☐ $[40-8q\int dx]$

Q38 If demand function is $[p=40-8q]$. Compute marginal revenue (MR) of the function

- ☐ $[40-8q]$
- ☐ $[80-4q]$
- ☐ $[-4]$
- ☐ $[36]$

Q39 Evaluate $[\int 9e^{-3x}dx]$ using one of the rules of integration

- ☐ $[-3e^{13x}dx]$
- ☐ $[-3e^{13x}\int dx]$
- ☐ $[\int -3e^{13x}+C]$
- ☐ $[-3e^{13x}+C]$

Q40 The difference between the definite and the indefinite integral is,

- ☐ indefinite integral is definite
- ☐ definite integral has limits
- ☐ definite integral depends on single variable
- ☐ indefinite integral has definite value