Total Differential MCQ Questions

Q1. Find the total differential of $w = x^3yz + xy + z + 3$ at $(1, 2, 3)$

- $dw = dx + 2\,dy + 18\,dz$
- $dw = 20\,dx + 3\,dz$
- $dw = dx + 8\,dy + 10\,dz$
- $dw = 20\,dx + 4\,dy + 3\,dz$

Q2. Find dz, given $z = x^4e^{3y}$

- $dz = e^{3y}dx + e^{3y}dy$
- $dz = 3x^4e^{3y}dy$
- $dz = 4x^3e^{3y}dx$
- $dz = 4x^3e^{3y}dx + 3x^4e^{3y}dy$

Q3. Total differential is useful in approximating the value of function at a given point.

- TRUE
- FALSE

Q4. "Differentials were introduced by Leibnitz in the 1680s"

- TRUE
- FALSE

Q5. $z = \sqrt{x} - siny$. Approximate z at the point $(4.1, 0.8)$

- 1.4531
- 1.5341
- 1.4500

ANSWER KEY

Q1. $dw = 20\,dx + 4\,dy + 3\,dz$

Q2. $dz = 4x^3 e^{3y}\,dx + 3x^4 e^{3y}\,dy$

Q3. TRUE

Q4. TRUE

Q5. 1.4531