

## GateWay 2 Practice

**Problem 1.** Differentiate the following

i.  $\int 2y \cos(-y) dy$

vii.  $\int \cos(7z)(1 + \sin(7z)) dz$

ii.  $\int \cos(2q) dq$

viii.  $\int (6x^2 + 4x^{-3}) dx$

iii.  $\int (n^6 - 2n + n) dn$

ix.  $\int_0^2 (4r^3 - r^2 + 7) dr$

iv.  $\int (4q^3 - 3q^2 + (1/2)) dq$

x.  $\int \frac{e^p + e^{2p}}{2e^p + e^{2p}} dp$

v.  $\int \frac{e^{2m} + e^{-2m}}{e^{2m} - e^{-2m}} dm$

xi.  $\int \frac{z}{\sqrt{7 - z^2}} dz$

vi.  $\int_0^\pi \sin(q/3) dq$

xii.  $\int z \ln(z) dz$