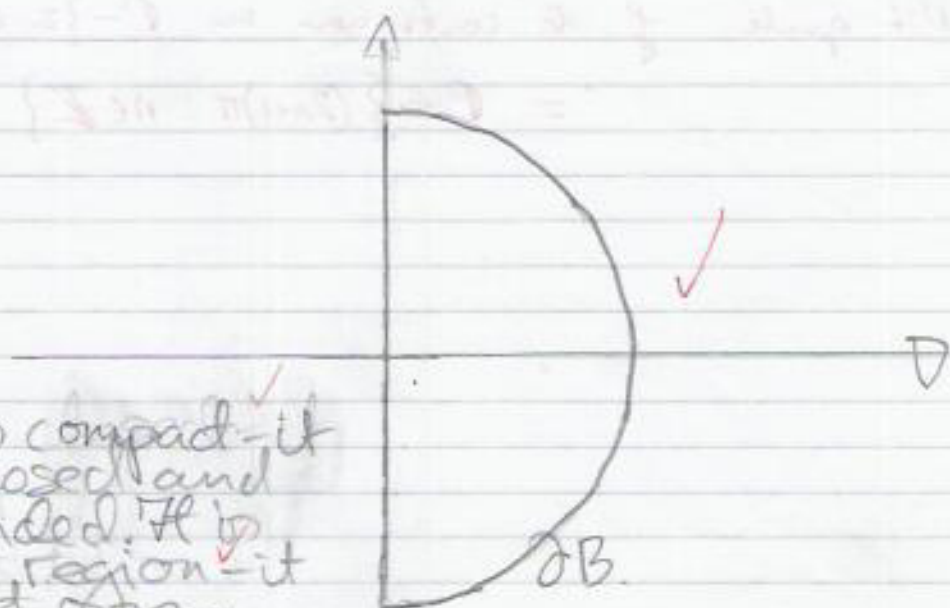


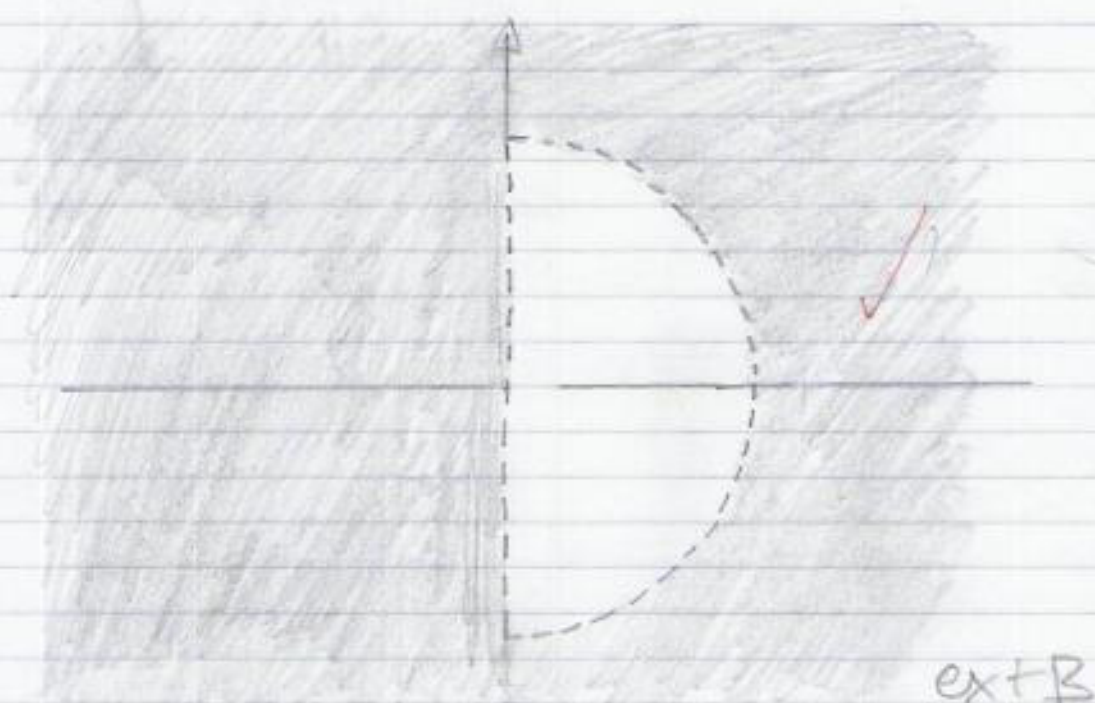
(9)

c) i)



2A

∂B is compact - it is closed and bounded. It is not a region - it is not open.



2A

compact? no - not bounded ✓
a region? - yes, open & connected ✓

ii) $z^2, \sin z, e^{iz}$ are continuous on ∂B , which is compact, and

$$1 + e^{iz} = 1 + \cos z + i \sin z \neq 0$$

$f(z) = \frac{\sin z^2}{1 + e^{iz}}$ is continuous, so

2/3 AM

by the boundedness theorem $f(z)$ is bounded on ∂B ✓

$$\text{iii) } g(z) = ze^{-iz}$$

(P10)