Problem 3:

$\operatorname{cosec}^{-1}(-x)$, $x \in \mathbb{R} - (-1,1)$, is equal to

(a) $\operatorname{cosec}^{-1} x$ (b) $-\sin^{-1} x$

(c) $-\sin^{-1}(1/x)$ (d) $\pi - \operatorname{cosec}^{-1} x$

Solution: $\operatorname{cosec}^{-1}(-x) = -\operatorname{cosec}^{-1}(x)$

Also, $\operatorname{cosec}^{-1}(x) = \sin^{-1}(1/x)$

$\therefore \operatorname{cosec}^{-1}(-x) = -\sin^{-1}(1/x)$