Let α and β be the roots of equation $x^2-6x-2=0$. If $a_n=\alpha^n-\beta^n$, for $n\geq 1$, then the value of $\frac{a_{10}-2a_8}{2a_9}$ is equal to :

(1) 3

(2) -3

(3) 6

(4) -6

DOPREP

$x^2-6x-2=0 \quad (\alpha,\beta)$

$\alpha+\beta=6 \; ; \; \alpha\beta=-2$

$$\frac{a_{10}-2a_8}{2a_9}=\frac{(\alpha^{10}-\beta^{10})-2(\alpha^8-\beta^8)}{2(\alpha^9-\beta^9)}$$

$$=\frac{(\alpha^9-\beta^9)(\alpha+\beta)+\alpha\beta^9-\alpha^9\beta-2(\alpha^8-\beta^8)}{2(\alpha^9-\beta^9)}$$

$$=\frac{(\alpha^9-\beta^9)(\alpha+\beta)-\alpha\beta(\alpha^8-\beta^8)-2(\alpha^8-\beta^8)}{2(\alpha^9-\beta^9)}$$

$$=\frac{6(\alpha^9-\beta^9)+2(\alpha^8-\beta^8)-2(\alpha^8-\beta^8)}{2(\alpha^9-\beta^9)}$$

$=3$

Correct option is (1)