

**Que 1:** If  $x = -1$  and  $x = 2$  are two extreme points of  $f(x) = \alpha \log|x| + \beta x^2 + x$  then:

[JEE-MAIN 2014]

(1)  $\alpha = -6, \beta = \frac{1}{2}$

(2)  $\alpha = -6, \beta = -\frac{1}{2}$

(3)  $\alpha = 2, \beta = -\frac{1}{2}$

(4)  $\alpha = 2, \beta = \frac{1}{2}$

**Ans 1:**

$$f(x) = \alpha \log|x| + \beta x^2 + x$$

$$\Rightarrow f'(x) = \frac{\alpha}{x} + 2\beta x + 1$$

$$\text{Now put } x = -1 \Rightarrow -\alpha - 2\beta + 1 = 0 \quad \dots \dots \dots (1)$$

$$\text{put } x = 2 \Rightarrow \frac{\alpha}{2} + 4\beta + 1 = 0 \quad \dots \dots \dots (2)$$

On solving (1) and (2)

$$\alpha = 2, \beta = -\frac{1}{2}$$