

Differentiate up to four times  $b\ln|y|$

**Solution:**  $f(y) = b\ln|y|$

$$\frac{df}{dy} = \frac{b}{y}$$

$$\frac{d^2f}{dy^2} = -\frac{b}{y^2}$$

$$\frac{d^3f}{dy^3} = \frac{2b}{y^3}$$

$$\frac{d^4f}{dy^4} = -\frac{6b}{y^4}$$

**Answer:**  $\frac{d^4f}{dy^4} = -\frac{6b}{y^4}$