

### 13 経済数学入門 II 小テスト (2019/01/09) : 解答・解説

クラス : 02 番号 :

氏名 :

---

問題 13.1. 次の微分を求めよ.

$$(1) (\ln(2x - 5))' = \frac{(2x - 5)'}{2x - 5} = \frac{2}{2x - 5}$$

$$(2) \left(\ln(x^{\frac{1}{3}})\right)' = \left(\frac{1}{3} \cdot \ln(x)\right)' = \frac{1}{3} \cdot \frac{1}{x} = \frac{1}{3x}$$

$$(3) (\ln(x^{-4}))' = (-4 \cdot \ln(x))' = -4 \cdot \frac{1}{x} = -\frac{4}{x}$$

$$(4) (\ln(6^x))' = (x \cdot \ln(6))' = 1 \cdot \ln(6) = \ln(6)$$

$$(5) (\ln((2x - 5)^3))' = (3 \cdot \ln(2x - 5))' = 3 \cdot \frac{2}{2x - 5} = \frac{6}{2x - 5}$$

問題 13.2.  $f(x, y) = \ln(x^{0.8}y^{0.2})$  のとき, 次を求めよ.

$$\bullet f_x(x, y) = (0.8 \cdot \ln(x) + 0.2 \cdot \ln(y))_x = \frac{0.8}{x}$$

$$\bullet f_y(x, y) = (0.8 \cdot \ln(x) + 0.2 \cdot \ln(y))_y = \frac{0.2}{y}$$

$$\bullet \frac{f_x(x, y)}{f_y(x, y)} = \frac{\frac{0.8}{x}}{\frac{0.2}{y}} = \frac{0.8}{x} \cdot \frac{y}{0.2} = \frac{4y}{x}$$