

$$(1) y' = 3x^2 - 8x + 7 \quad (2) y' = x^2 + 2x \quad (3) y' = 0 \quad (4) y' = 3(x+2)^2$$

$$(5) y' = 3(x-1)(x+1) \quad (6) y' = (9x-13)(x+1) \quad (7) y' = 3x^2 - 12x + 11 \quad (8) y' = 3x^2 - 4x$$

次の関数を微分せよ。

$$(1) y = x^3 - 4x^2 + 7x + 1$$

$$y' = 3x^2 - 8x + 7$$

$$(2) y = \frac{1}{3}x^3 + x^2$$

$$y' = x^2 + 2x$$

$$(3) y = -4$$

$$y' = 0$$

$$(4) y = (x+2)^3$$

$$y' = 3(x+2)^2$$

$$(5) y = (x-1)^2(x+2)$$

$$y' = 2(x-1)(x+2) + (x-1)^2 = (x-1)\{2(x+2) + (x-1)\} = (x-1)(3x+3) = 3(x-1)(x+1)$$

$$(6) y = (x-2)(3x^2 + 4x - 1)$$

$$y' = (3x^2 + 4x - 1) + (x-2)(6x+4) = 3x^2 + 4x - 1 + 6x^2 - 8x - 12 = 9x^2 - 4x - 13 = (9x-13)(x+1)$$

$$(7) y = (x-1)(x-2)(x-3)$$

$$y' = (x-2)(x-3) + (x-1)(x-3) + (x-1)(x-2) = 3x^2 - 12x + 11$$

$$(8) y = x(x-1)(x-2) + (x-1)(x-2) + x - 2$$

$$y' = (x-1)(x-2) + x(x-2) + x(x-1) + (x-2) + (x-1) + 1 = 3x^2 - 4x$$