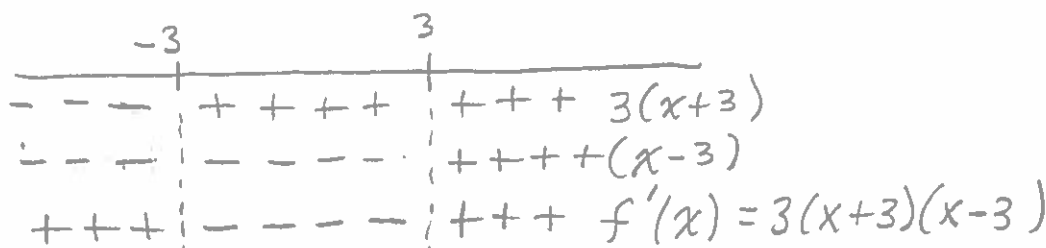


② Find the intervals on which  $y = x^3 - 27x + 36$  increases and decreases.

$$\frac{dy}{dx} = 3x^2 - 27 = 3(x^2 - 9) = 3(x+3)(x-3) = 0$$

Critical points:  $x = -3$        $x = 3$

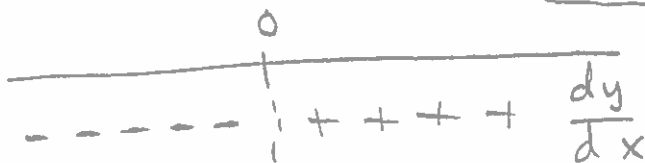


Function increases on  $(-\infty, -3) \cup (3, \infty)$   
Function decreases on  $(-3, 3)$

⑥ Find the intervals on which  $y = e^x - x$  increases and decreases.

$$\frac{dy}{dx} = e^x - 1 = 0$$

$x = 0$  is the only solution of  $e^x - 1 = 0$ , so it's the only critical point.



Function decreases on  $(-\infty, 0)$  and increases on  $(0, \infty)$