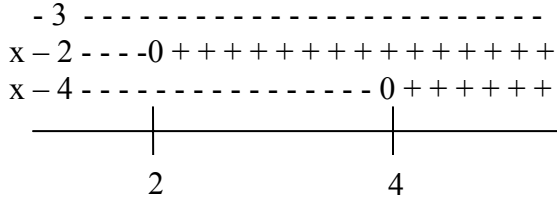


$$f(x) = -x^3 + 9x^2 - 24x + 18$$

$$f'(x) = -3x^2 + 18x - 24 = -3(x^2 - 6x + 8) = -3(x - 2)(x - 4)$$

So we have critical points at  $x = 2, 4$



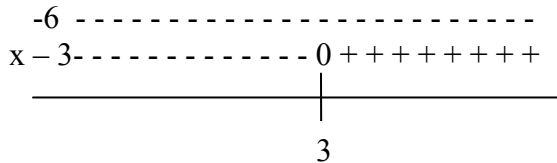
$f$  is decreasing on  $(-\infty, 2)$  and  $(4, +\infty)$

$f$  is increasing on  $(2, 4)$

$f$  has a relative maximum of 2 at  $x = 4$

$f$  has a relative minimum of -2 at  $x = 2$

$$f''(x) = -6x + 18 = -6(x - 3)$$



$f$  is concave up on  $(-\infty, 3)$

$f$  is concave down on  $(3, +\infty)$

$f$  has an inflection point of  $(3, 0)$

