

2. $f'(x) = -2x + 3$

$$-2x + 3 > 0 \Leftrightarrow -2x > -3 \Leftrightarrow x < \frac{3}{2}$$

x	$-\infty$	$\frac{3}{2}$	$+\infty$
f'	+	\emptyset	-
f	$-\infty$	$f(\frac{3}{2})$	$-\infty$

$$\lim_{x \rightarrow -\infty} f(x) = -\infty$$

$$f(\frac{3}{2}) = 7,25$$

$$\lim_{x \rightarrow +\infty} f(x) = -\infty$$

3. $f'(x) = 3x^2 - 3$

$$3x^2 - 3 \quad a = 3 > 0 \quad \cup \quad b = 0 \quad c = -3$$

$$\Delta = 0^2 - 4 \times 3 \times (-3) = 36 > 0 \quad + \quad - \quad +$$

$$x_1 = \frac{0 - 6}{6} = -1$$

$$x_2 = \frac{0 + 6}{6} = 1$$

x	$-\infty$	-1	1	$+\infty$	
f'	$+$	\emptyset	$-$	\emptyset	$+$
f	$-\infty$	$f(-1)$	$f(1)$	$+\infty$	

$$\lim_{x \rightarrow -\infty} f(x) = -\infty$$

$$f(-1) = -1 + 3 + 1 = 3$$

$$f(1) = -1 - 3 + 1 = -3$$

$$\lim_{x \rightarrow +\infty} f(x) = +\infty$$