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

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

x	$-\infty$		$3/2$		$+\infty$
f'		$+$	0	$-$	
f	$-\infty$	↗	$f(\frac{3}{2})$	↘	$-\infty$

$$\lim_{x \to -\infty} f(x) = \lim_{x \to -\infty} (-x^2) = -\infty$$

$$f\left(\frac{3}{2}\right) = -\left(\frac{3}{2}\right)^2 + 3\left(\frac{3}{2}\right) + 5 = -\frac{9}{4} + \frac{9}{2} + 5 =$$

$$= \frac{-9 + 18 + 20}{4} = \frac{29}{4}$$

$$\lim_{x \to +\infty} f(x) = \lim_{x \to +\infty} (-x^2) = -\infty$$