

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

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

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

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

$$\begin{aligned} f\left(\frac{3}{2}\right) &= -\left(\frac{3}{2}\right)^2 + 3\left(\frac{3}{2}\right) + 5 = -\frac{9}{4} + \frac{9}{2} + 5 = \\ &= \frac{-9 + 18 + 20}{4} = \frac{29}{4} \end{aligned}$$

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