

Sonderfälle bei lokalen Extrema:

$f(x) = x^4$	$f(x) = x^3$
<p>The graph shows the function $f(x) = x^4$. The curve is symmetric about the y-axis, passing through the origin (0,0). It has a sharp cusp-like shape where it meets the x-axis at x = -2, -1, 1, and 2. The y-axis is labeled with values 1, 5; 1; 0,5; -0,5; -1; -1,5.</p>	<p>The graph shows the function $f(x) = x^3$. The curve passes through the origin (0,0) and continues upwards and to the right, showing a continuous curve with no sharp corners or cusps.</p>
Extremum:	Extremum:
$f'(x) =$	$f'(x) =$
<p>The graph shows the derivative $f'(x) = 4x^3$. The curve passes through the origin (0,0) and is increasing for all x < 0 and x > 0. It has a local maximum at the origin.</p>	<p>The graph shows the derivative $f'(x) = 3x^2$. The curve passes through the origin (0,0) and is increasing for all x < 0 and x > 0. It has a local minimum at the origin.</p>
$f'(x) = 0$ $\Leftrightarrow x_0 =$	$f'(x) = 0$ $\Leftrightarrow x_0 =$
$f''(x) =$	$f''(x) =$
$f''(x_0) =$	$f''(x_0) =$
<p>Wenn $f'(x_0) = 0$ und $f''(x_0) =$</p> <ul style="list-style-type: none"> • dann hat f in x_0 ein Maximum, wenn • dann hat f in x_0 ein Minimum, wenn • dann hat f in x_0 kein Maximum oder Minimum, wenn 	