\[ f(x) = -x^3 + 9x^2 - 24x + 18 \]
\[ f'(x) = -3x^2 + 18x - 24 = -3(x^2 - 6x + 8) = -3(x - 2)(x - 4) \]
So we have critical points at \( x = 2, 4 \)

<table>
<thead>
<tr>
<th>x</th>
<th>-3</th>
<th>2</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>f</td>
<td>+</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>f'</td>
<td>-3</td>
<td>-</td>
<td>+</td>
</tr>
</tbody>
</table>

\( f \) is decreasing on \( (-\infty, 2) \) \text{ 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 \( x = 2 \)
\[ f''(x) = -6x + 18 = -6(x - 3) \]
\[ f'' | x = 3 \rightarrow + \]
\( f \) is concave up on \( (-\infty, 3) \)
\( f \) is concave down on \( (3, +\infty) \)
\( f \) has an inflection point at \( (3, 0) \)