4.6.15* produce several graphs that show all the details that one graph cannot supply, use MAPLE to find the (x,y) for the critical points and points of inflection, finally make an exaggerated hand sketch "road map" labeling all points with 3 significant digit accuracy that summarizes your results.

\[ y = f(x) = \frac{(x+4)(x-3)^2}{x^4(x-1)} \]

- $f'(x) = 0 \rightarrow x = -4, 3$ x-intercepts
- $f''(x) = 0 \rightarrow x = 0, 1$ vertex asymptote

\[ \lim_{x \to 0^+} x^{1/3} \Rightarrow \frac{x^3}{x^2} = \frac{1}{x} \rightarrow 0^+ \text{ as } x \to 0^+ \text{ tan asymptote in both directions,} \]

odd factors - changes sign across $x = -4, 1$

even factors - sign unchanged across $x = 0, 3$

- sign chart plus h-asymptote/v-asymptote info:

<table>
<thead>
<tr>
<th>$x$</th>
<th>$-4$</th>
<th>$0$</th>
<th>$3$</th>
<th>$0^+$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$y$</td>
<td>$+$</td>
<td>$-$</td>
<td>$+$</td>
<td>$+$</td>
</tr>
</tbody>
</table>

therefore expect at least:

- at the minimum we expect at least 4 critical points which in turn require at least 3 pts of inflection

final roadmap: