Entering an environment that is completely devoid of the distraction of graphing utility devices, graph each of the following rational functions. Label in your graph all intercepts and all asymptotes. Show absolutely all of your work in acquiring these details regarding the graph.

1. $y = \dfrac{15x^2 + 34x - 16}{7x^2 + 13x - 2}$

2. $y = \dfrac{x^3 - 3x^2 + x - 3}{x^2 + x - 2}$