11.1 Rational Functions Practice Problems

1. Describe the end behavior of the following rational functions.

   (a) $f(x) = \dfrac{3x - 1}{2 - 5x}$

   (b) $h(x) = \dfrac{x + 7}{x^2 - 6x + 8}$

   (c) $l(x) = \dfrac{x^2 - 6x + 8}{x + 7}$

   (d) $n(x) = \dfrac{7x^2 - 3x + 2x^3 + 6}{4x - x^2 - 2 - 5x^3}$

   (e) $o(x) = \dfrac{(2x + 5)^4(6 - x)^3}{(3x - 1)(x - 2)^6}$

2. Find all vertical asymptotes, horizontal asymptotes, holes, x-intercepts, and y-intercepts for the following rational functions. Show the algebra that justifies your answer. Graph these functions.

   (a) $f(x) = \dfrac{3x - 1}{2 - 5x}$

   (b) $g(x) = \dfrac{2x}{x + 7}$

   (c) $h(x) = \dfrac{x + 7}{x^2 - 6x + 8}$

   (d) $k(x) = \dfrac{x + 7}{x^2 + 6x - 7}$