Name: _____ Date: _____

| **Learning Goal 2.2** | Limits at infinity and the definition of the derivative |
|---|---|

There are **three** different types of asymptotes:

**Vertical** **Horizontal** **Slant/Oblique**

**Example** Find the asymptote equation(s) and type(s) of the following functions, if any.

a. $f(x) = \frac{1}{x^2 - x - 6}$

b. $f(x) = \frac{x^4 - 5x^2 + 4}{x - 1}$

c. $f(x) = \frac{x^2 + 8x - 20}{x - 1}$

d. $f(x) = \frac{2x^2 - 4x + 8}{3x^2 - 27}$

e. $f(x) = \dfrac{x-7}{x+5}$

f. $f(x) = \dfrac{3}{x^2-2}$

g. $f(x) = \dfrac{x^2}{x-5}$

h. $f(x) = \dfrac{2x^2-5x+3}{x-1}$

i. $f(x) = \dfrac{7x^2+5x-2}{2x^2-18}$

j. $f(x) = \dfrac{2x^2-5x+5}{x-2}$

k. $f(x) = \dfrac{1}{3-x}$

l. $f(x) = \dfrac{x^2-4}{x^4-81}$