Algebra II Pre-AP CW on Rational Functions

Find all the asymptotes. If an asymptote doesn't exist, say so.

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

2. $f(x) = \dfrac{x^2 - 1}{x^2 + 5x + 6}$

3. $f(x) = \dfrac{x^2 - 4}{x^2 - x - 6}$

Graph the following rational functions:

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

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

6. $f(x) = \dfrac{x}{x^2 - 2x - 8}$