Precalculus – More with graphing rational functions

For each function below, find:

a) the values of x which must be excluded from the domain.
b) Find the holes, vertical, horizontal, and slant asymptotes.
c) Using x, y intercepts and other points sketch the graphs.

1) $f(x) = \frac{4}{x-5}$

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

3) $f(x) = \frac{2}{x^2+3x-10}$

4) $f(x) = \frac{x^2-4x+3}{x^2-x-6}$

5) $f(x) = \frac{x^2+2x-15}{x-3}$

6) $f(x) = \frac{x^2-x-6}{x^2+3x+2}$

Challenge Problems

7) $f(x) = \frac{(x-1)(x-4)}{(x-4)(x-3)(x+2)}$

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