8, 1, 2, 3, 5

8. $\frac{x^2+3x+2}{x-3} \cdot \frac{x^2-9}{x+1}$

$\frac{(x+1)(x+2)}{(x-3)} \cdot \frac{(x-3)(x+3)}{(x+1)}$

$(x+2)(x+3)$

$x^2+3x+2x+6$

$\boxed{x^2+5x+6}$

5. $(3a^{-4}c^3)^{-2}$

$3^{-2}a^8c^{-6} = \frac{a^8}{3^2c^6} = \frac{a^8}{9c^6}$

1. $f(x) = \frac{3x+15}{x^2+3x-10}$

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

Hole: $x+5=0$, $x=-5$ Asym: $x-2=0$, $x=2$

2. $f(x) = \frac{2x+1}{10x^2+7x+1}$

$f(x) = \frac{2x+1}{(2x+1)(5x+1)}$

$10x^2 + 2x + 5x + 1$

$10x^2 + 7x + 1$ ✓

Hole: $2x+1=0$

$2x=-1$

$\frac{2x}{2} = \frac{-1}{2}$

Hole: $x = -1/2$

Asym: $5x+1=0$

$-1 \quad -1$

$\frac{5x=-1}{5}$

Asym: $x = -1/5$

Homework Ass.
2/24/10

3. $f(x) = \frac{x^2 - 5x - 6}{2x - 6}$

Find all asymptotes & holes.

$$f(x) = \frac{(3x-1)(2x+5)}{4(2x+1)}$$

~~$4 = 0$~~ $2x+1=0$