4.8
7

$$y = \frac{(x-1)^2}{x^2+5x+6}$$

(1) $x \neq -2, -3$ $\quad (0, \frac{1}{6})$ $\quad (1,0)$

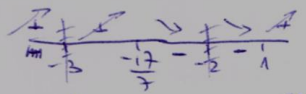
(2) $\lim_{x\to -2^+} \frac{9}{+0} = +\infty$ $\quad \lim_{x\to -2^-} \frac{9}{-0} = -\infty \to \boxed{x=-2}$

$\lim_{x\to -3^-} \frac{16}{+0} = \infty$ $\quad \lim_{x\to -3^+} \frac{16}{-0} = -\infty \to \boxed{x=-3}$

$m = \lim_{x\to\pm\infty} \frac{(x-1)^2}{x(x^2+5x+6)} = 0$ $\quad n = \lim_{x\to\pm\infty} \frac{(x-1)^2}{x^2+5x+6} = 1 \to \boxed{y=1}$

(4-5) $y' = \frac{2(x-1)(x^2+5x+6) - (x-1)^2(2x+5)}{(x^2+5x+6)^2} = \frac{(x-1)\left[2x^2+10x+12-2x^2-3x+5\right]}{(x^2+5x+6)^2}$

$0 \overset{13,14}{=} \frac{(x-1)(7x+17)}{(x^2+5x+6)^2} \to x = 1, -\frac{17}{7}$



עולה: $x>1$ $\quad -3<x<-\frac{17}{7}$, $x<-3$

יורדת: $-\frac{17}{7}<x<-2$ $\quad -2<x<1$

$\max(-\frac{17}{7}, -48)$

$\min(1,0)$