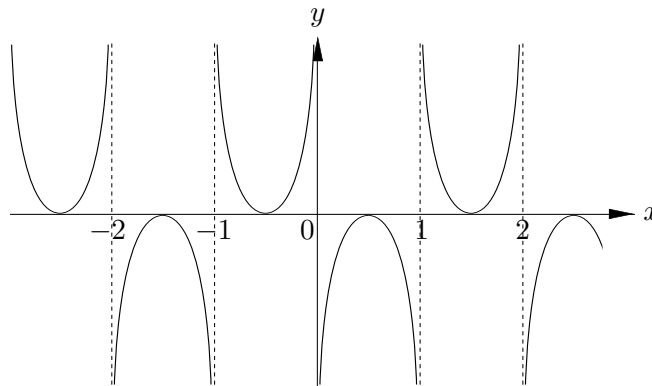
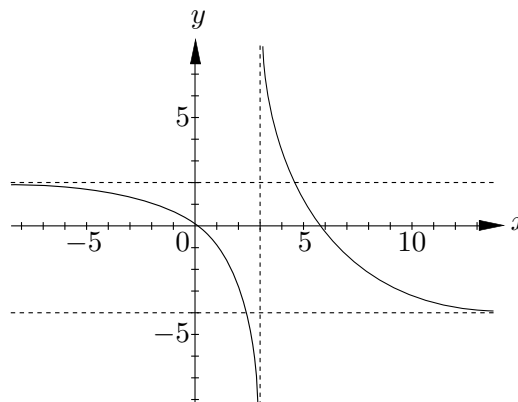


1. [12 points] For each of the following graphs of functions, write down
- the period if the function could be periodic with a period less than 10, or **NONE** otherwise.
 - the equation of a horizontal asymptote if it has horizontal asymptotes, or **NONE** otherwise.
 - the equation of a vertical asymptote if it has vertical asymptotes, or **NONE** otherwise.
- a. [6 points]



Solution:
 Period=2.
 Vertical asymptote: $x = 1$.
 Horizontal asymptote: None.

- b. [6 points]



Solution:
 Period=None.
 Vertical asymptote: $x = 3$.
 Horizontal asymptote: $y = 2$ or $y = -4$.