

Horizontal Asymptotes

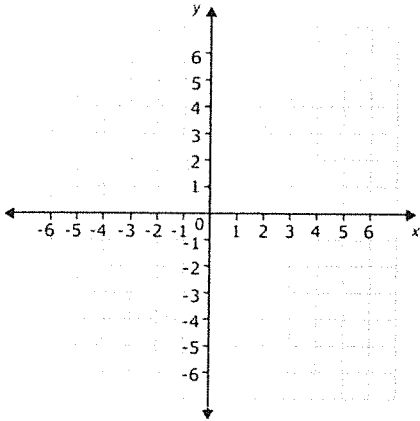
For each function find the domain, the vertical asymptote (if any), the horizontal asymptote (if any), and graph it.

1. $f(x) = \frac{1}{x-3}$

Domain:

Vertical Asymptote:

Horizontal Asymptote:

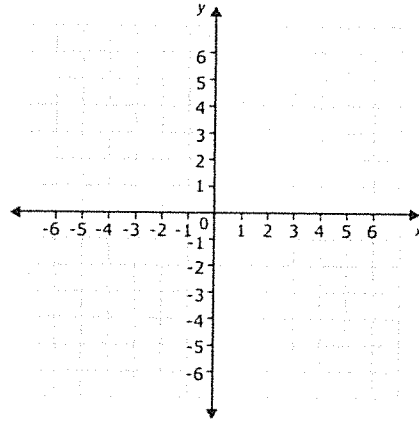


2. $f(x) = \frac{-1}{x^2+6x+9}$

Domain:

Vertical Asymptote:

Horizontal Asymptote:

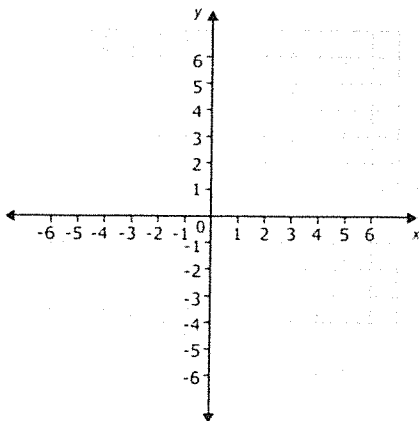


3. $f(x) = \frac{x^3-x^2-6x}{x+2}$

Domain:

Vertical Asymptote:

Horizontal Asymptote:

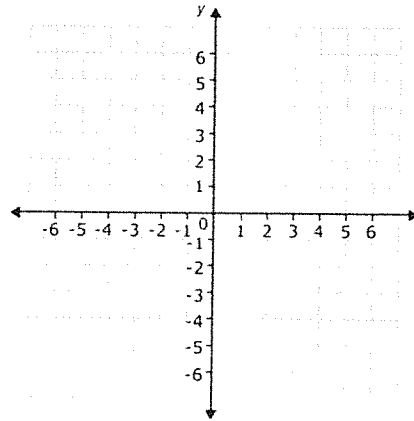


4. $f(x) = \frac{1}{2x-3} - 2$

Domain:

Vertical Asymptote:

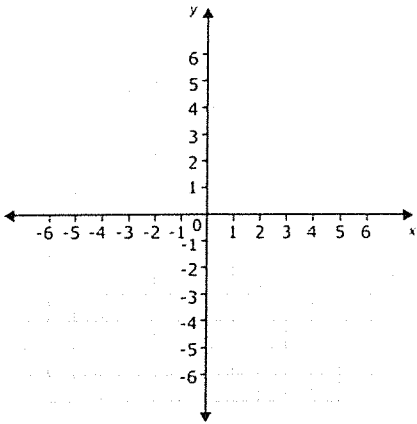
Horizontal Asymptote:



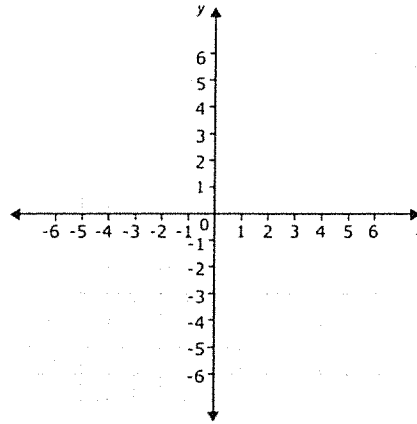
5. Explain in your words why the horizontal asymptote of a rational function is $y = 0$ when the degree of the denominator is larger than the degree of the numerator.

Graph.

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

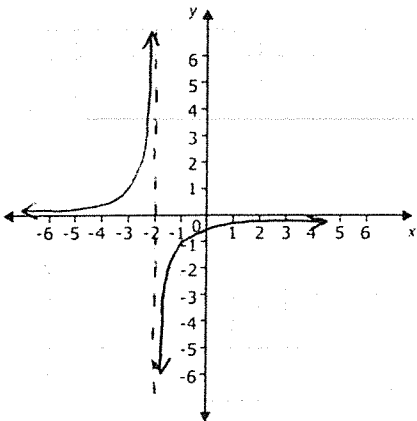


7. $f(x) = \frac{5-x}{x^2-5x} - 2.5$

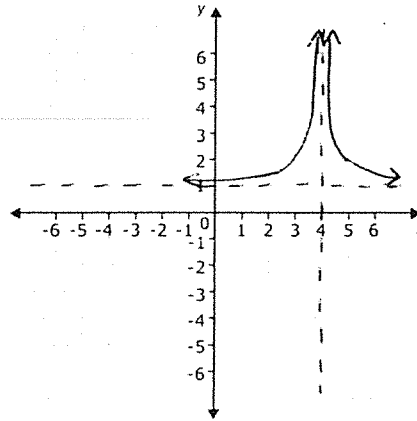


Which functions are graphed below?

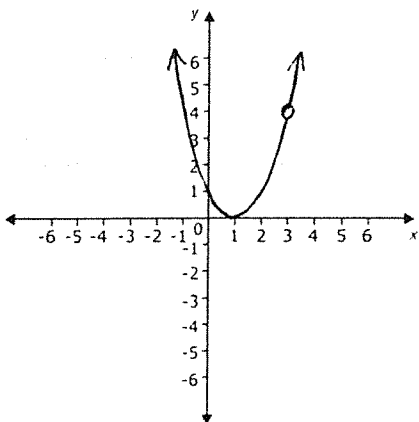
8.



9.



10.



11.

