Asymptotes

In problems 1-4, Find the vertical and horizontal asymptotes.

1. $f(x)=\dfrac{3x^2-7x+1}{4x^2-16}$	2. $f(x)=\dfrac{x^2-2x-3}{x^2-9}$
3. $f(x)=\dfrac{2x}{x^2-12x+20}$	4. $f(x)=\dfrac{x^2+8x+2}{x-3}$

In problems 5-7, Find the vertical asymptote(s)

5. $f(x)=\dfrac{3}{7x^2+13x-2}$	6. $f(x)=\dfrac{x^2-4x-21}{x^2-49}$
7. $f(x)=\dfrac{x^2+8x+15}{x^2-2x-35}$	

In problems 8-10, Use the TI-83/84 to find the limit

8. $\lim\limits_{x\to 5^+}\dfrac{x-1}{x-5}$	9. $\lim\limits_{x\to 3^-}\dfrac{2}{(x-3)^2}$
10. $\lim\limits_{x\to 2^-}\dfrac{x^2-3}{x^2-4}$	

In problems 11-12, Find the limit

11. $\lim\limits_{x\to\infty}\left(2+\dfrac{5}{x}\right)$	12. $\lim\limits_{x\to\infty}\left(3+\dfrac{1}{x^2}\right)$

In problems 13-17, Find the horizontal asymptotes.

13. $f(x)=\dfrac{7x+2}{5x-1}$	14. $f(x)=\dfrac{3x^2-4x+1}{8x+3}$
15. $f(x)=\dfrac{8x+1}{x^2-5x+1}$	16. $f(x)=\dfrac{4x^2+3x-5}{2x^2-x+3}$
17. $f(x)=\dfrac{3}{x^2-5x+1}$	

Asymptotes

In problem 18, Find each limit

18. $a)\lim_{x\to\infty}\frac{x^2+3}{x^3-x+2}$ $b)\lim_{x\to\infty}\frac{3x^2+1}{4x^2-3x+5}$ $c)\lim_{x\to\infty}\frac{x^3}{x^2-5+1}$	

In problems 19-22, sketch the graph of the equation. Use intercepts, extrema, and asymptotes.

19. $f(x)=\frac{x+1}{x-2}$	20. $f(x)=\frac{3x^2+1}{x^2-4}$
21. $f(x)=\frac{x^2-5x+2}{x+1}$	22. $f(x)=\frac{7x-1}{x^2-9}$