Infinite Limits – Larson 7.0 Section 1.5 10-28 even, 34-48 even

In Exercises 9–28, find the vertical asymptotes (if any) of the function.

9. $f(x) = \dfrac{1}{x^2}$

10. $f(x) = \dfrac{4}{(x-2)^3}$

11. $h(x) = \dfrac{x^2-2}{x^2-x-2}$

12. $g(x) = \dfrac{2+x}{x^2(1-x)}$

13. $f(x) = \dfrac{x^2}{x^2-4}$

14. $f(x) = \dfrac{-4x}{x^2+4}$

15. $g(t) = \dfrac{t-1}{t^2+1}$

16. $h(s) = \dfrac{2s-3}{s^2-25}$

17. $f(x) = \tan 2x$

18. $f(x) = \sec \pi x$

19. $T(t) = 1 - \dfrac{4}{t^2}$

20. $g(x) = \dfrac{\frac{1}{2}x^3 - x^2 - 4x}{3x^2 - 6x - 24}$

21. $f(x) = \dfrac{x}{x^2+x-2}$

22. $f(x) = \dfrac{4x^2+4x-24}{x^4-2x^3-9x^2+18x}$

23. $g(x) = \dfrac{x^3+1}{x+1}$

24. $h(x) = \dfrac{x^2-4}{x^3+2x^2+x+2}$

25. $f(x) = \dfrac{x^2-2x-15}{x^3-5x^2+x-5}$

26. $h(t) = \dfrac{t^2-2t}{t^4-16}$

27. $s(t) = \dfrac{t}{\sin t}$

28. $g(\theta) = \dfrac{\tan\theta}{\theta}$

In Exercises 33–48, find the limit.

33. $\lim\limits_{x\to 2^+} \dfrac{x-3}{x-2}$

34. $\lim\limits_{x\to 1^+} \dfrac{2+x}{1-x}$

35. $\lim\limits_{x\to 3^+} \dfrac{x^2}{x^2-9}$

36. $\lim\limits_{x\to 4^-} \dfrac{x^2}{x^2+16}$

37. $\lim\limits_{x\to -3^-} \dfrac{x^2+2x-3}{x^2+x-6}$

38. $\lim\limits_{x\to (-1/2)^+} \dfrac{6x^2+x-1}{4x^2-4x-3}$

39. $\lim\limits_{x\to 1} \dfrac{x^2-x}{(x^2+1)(x-1)}$

40. $\lim\limits_{x\to 3} \dfrac{x-2}{x^2}$

41. $\lim\limits_{x\to 0^-} \left(1+\dfrac{1}{x}\right)$

42. $\lim\limits_{x\to 0^-} \left(x^2-\dfrac{1}{x}\right)$

43. $\lim\limits_{x\to 0^+} \dfrac{2}{\sin x}$

44. $\lim\limits_{x\to (\pi/2)^+} \dfrac{-2}{\cos x}$

45. $\lim\limits_{x\to \pi} \dfrac{\sqrt{x}}{\csc x}$

46. $\lim\limits_{x\to 0} \dfrac{x+2}{\cot x}$

47. $\lim\limits_{x\to 1/2} x \sec \pi x$

48. $\lim\limits_{x\to 1/2} x^2 \tan \pi x$