xx-2-6-B Practice Problems

Determine the key points of each rational function. Key points are root(s), vertical asymptote(s), and the horizontal asymptote (if it exists).

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

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

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

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

15. $f(x) = \dfrac{3+x}{3-x}$

16. $f(x) = \dfrac{2-5x}{2+2x}$

17. $f(x) = \dfrac{2x^3}{x^2-1}$

18. $f(x) = \dfrac{3x^2+1}{x^2+x+9}$

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

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

Answer Key

Root(s) ; Vertical Asymptote(s) ; Horizontal Asymptote ; Removable Discontinuity

11. $x = 2 \;;\; x = 4 \;;\; y = 1 \;;\; none$

12. $x = -2 \;;\; x = -4 \;;\; y = -1 \;;\; none$

13. $none \;;\; x = 0 \;;\; y = 0 \;;\; none$

14. $none \;;\; x = 2 \;;\; y = 0 \;;\; none$

15. $x = -3 \;;\; x = 3 \;;\; y = -1 \;;\; none$

16. $x = \frac{2}{5} \;;\; x = -1 \;;\; y = -\frac{5}{2} \;;\; none$

17. $x = 0 \;;\; x = \pm 1 \;;\; none \;;\; none$

18. $none \;;\; none \;;\; y = 3 \;;\; none$

19. $x = 2 \;;\; none \;;\; none \;;\; x = -2$

20. $none \;;\; none \;;\; none \;;\; x = 0, 3$