

xx-2-7-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).

$$21. \quad f(x) = \frac{x^2}{x^2 - 4}$$

$$22. \quad f(x) = \frac{x}{x^2 - 9}$$

$$23. \quad f(x) = \frac{x}{x^2 - 4}$$

$$24. \quad f(x) = -\frac{1}{(x - 1)^2}$$

$$25. \quad f(x) = \frac{4(x + 1)}{x(x - 4)}$$

$$26. \quad f(x) = \frac{2}{x^2(x - 2)}$$

$$27. \quad f(x) = \frac{3x}{x^2 - x - 2}$$

$$28. \quad f(x) = \frac{2x}{x^2 + x - 2}$$

Answer Key

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

21. $x = 0$; $x = \pm 2$; $y = 1$; *none*

22. $x = 0$; $x = \pm 3$; $y = 0$; *none*

23. $x = 0$; $x = \pm 2$; $y = 0$; *none*

24. *none* ; $x = 1$; $y = 0$; *none*

25. $x = -1$; $x = 0, 4$; $y = 0$; *none*

26. *none* ; $x = 0, 2$; $y = 0$; *none*

27. $x = 0$; $x = -1, 2$; $y = 0$; *none*

28. $x = 0$; $x = -2, 1$; $y = 0$; *none*