

xx-2-7-C 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).

$$29. \quad f(x) = -\frac{4}{\frac{5}{x} - 5}$$

$$30. \quad f(x) = 2 + \frac{8}{3x - \frac{3}{x}}$$

$$31. \quad f(x) = \frac{2 + x}{1 - x}$$

$$32. \quad f(x) = \frac{3 - x}{2 - x}$$

$$33. \quad f(x) = \frac{3x + 1}{x}$$

$$34. \quad f(x) = \frac{x - 2}{x - 3}$$

$$35. \quad f(x) = \frac{4}{x^2 + 1}$$

$$36. \quad f(x) = -\frac{x}{(x - 2)^2}$$

Answer Key

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

29. $x = 0$; $x = 1$; $y = \frac{4}{5}$; *none*

30. $x = \frac{-2 \pm \sqrt{13}}{3}$; $x = \pm 1$; $y = 2$

31. $x = -2$; $x = 1$; $y = -1$; *none*

32. $x = 3$; $x = 2$; $y = 1$; *none*

33. $x = -\frac{1}{3}$; $x = 0$; $y = 3$; *none*

34. $x = 2$; $x = 3$; $y = 1$; *none*

35. *none* ; *none* ; $y = 0$; *none*

36. $x = 0$; $x = 2$; $y = 0$; *none*