

xx-2-7 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).

$$13. \quad f(x) = \frac{1}{x+2}$$

$$14. \quad f(x) = \frac{1}{x-5}$$

$$15. \quad f(x) = \frac{5+2x}{x+1}$$

$$16. \quad f(x) = \frac{1-3x}{1-x}$$

$$17. \quad f(x) = \frac{1}{x+2} + 2$$

$$18. \quad f(x) = \frac{1-2x}{x}$$

$$19. \quad f(x) = 2 - \frac{3}{x^2}$$

$$20. \quad f(x) = \frac{x^2}{x^2-9}$$

Answer Key

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

13. *none* ; $x = -2$; $y = 0$; ; *none*

14. *none* ; $x = 5$; $y = 0$; ; *none*

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

16. $x = \frac{1}{3}$; $x = 1$; $y = 3$; ; *none*

17. $x = -\frac{5}{2}$; $x = -2$; $y = 2$; ; *none*

18. $x = \frac{1}{2}$; $x = 0$; $y = -2$; ; *none*

19. $x = \pm\sqrt{\frac{3}{2}}$; $x = 0$; $y = 2$; *none*
 $x = \pm\sqrt{\frac{3}{2}} = \pm\frac{\sqrt{6}}{2}$

20. $x = 0$; $x = \pm 3$; $y = 1$; *none*