

xx-2-6 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).

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

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

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

4. $f(x) = \frac{3}{|x-1|}$

5. $f(x) = \frac{3x^2}{x^2-1}$

6. $f(x) = \frac{4x}{x^2-1}$

7. $f(x) = \frac{2}{x+2}$

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

9. $f(x) = \frac{4x+1}{x}$

10. $f(x) = \frac{1-x}{x}$

Answer Key

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

1. none ; $x = 1$; $y = 0$
2. $x = 0$; $x = 1$; $y = 5$
3. $x = 0$; $x = 1$; $y = 3$
4. none ; $x = 1$; $y = 0$
5. $x = 0$; $x = \pm 1$; $y = 3$
6. $x = 0$; $x = \pm 1$; $y = 0$
7. none ; $x = -2$; $y = 0$
8. none ; $x = 3$; $y = 0$
9. $x = -\frac{1}{4}$; $x = 0$; $y = 4$
10. $x = 1$; $x = 0$; $y = -1$