

EXERCISE A

Determine the equation of any vertical asymptotes, and the values of x for any holes in the graph of each rational function.

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

2) $f(x) = \frac{3}{x^2 - 4x + 4}$

3) $f(x) = \frac{x-1}{x^2 + 4x - 5}$

Graph each rational function.

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

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

6) $f(x) = \frac{x^2 - 25}{x - 5}$

7) $f(x) = \frac{x+2}{x^2 - x - 6}$

EXERCISE B

Determine the equation of any vertical asymptotes, and the values of x for any holes in the graph of each rational function.

8) $f(x) = \frac{2}{x^2 - 5x + 6}$

9) $g(x) = \frac{4}{x^2 + 2x - 8}$

10) $g(x) = \frac{x+3}{x^2 + 7x + 12}$

11) $h(x) = \frac{x-5}{x^2 - 4x - 5}$

Graph each rational function.

12) $f(x) = \frac{3}{x}$

13) $f(x) = \frac{5x}{x+1}$

14) $f(x) = \frac{6}{(x-2)(x+3)}$

15) $f(x) = \frac{1}{(x+3)^2}$

16) $f(x) = \frac{x^2 - 1}{x - 1}$

17) $f(x) = \frac{x+6}{x^2 - 36}$

18) LeBlonde plays basketball for Indian Valley High School. So far this season, she has made 6 out of 10 free throws. She is determined to improve her free throw shooting percentage. If she can make x consecutive free throws, her free throw percentage can be determined using the function: $P(x) = \frac{6+x}{10+x}$

- a) Graph the function.
- b) What part of the graph is meaningful in the context of the problem?
- c) Describe the meaning of the y-intercept.
- d) What is the equation of the horizontal asymptote? Explain its meaning with respect to LeBlonde's shooting percentage.



ANSWERS:

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|------|----------------------|--------|------------------------|
| 1) | asymptote: $x = 1/3$ | 9) | asymptote: $x = -4, 2$ |
| | hole: $x = 0$ | | hole: none |
| 3) | asymptote: $x = -5$ | 11) | asymptote: $x = -1$ |
| | hole: $x = 1$ | | hole: $x = 5$ |
| 4-7) | See Mr. Paull | 12-17) | See Mr. Paull |