Find the vertical asymptote of $f(x) = \frac{4x + 7}{x + 4}$.

Find the horizontal asymptote of $f(x) = \frac{-6x + 8}{6x + 2}$.

Find the vertical asymptotes of $f(x) = \frac{x + 7}{x^2 + x - 2}$.

The graph of $f(x) = \frac{x^2 + x - 12}{x + 4}$ has a hole at $x = -4$. Find the y-coordinate of the hole.

Find the x-intercept of $f(x) = \frac{x + 5}{x + 7}$. Write it as $x = a$.

Find the horizontal asymptote of $f(x) = \frac{5x - 6}{2x^2 - 4x + 7}$.

Find the horizontal asymptote of $f(x) = \frac{5x - 8}{2x^2 + x + 3}$.

Find the horizontal asymptote of $f(x) = \frac{6x + 6}{2x^2 + 4x + 7}$.

Rational Functions: Asymptotes & Holes · 2

ANSWER

$y = -1$

Rational Functions: Asymptotes & Holes · 1

ANSWER

$x = -4$

Rational Functions: Asymptotes & Holes · 4

ANSWER

-7

Rational Functions: Asymptotes & Holes · 3

ANSWER

$x = -2$ or $x = 1$

Rational Functions: Asymptotes & Holes · 6

ANSWER

$y = 0$

Rational Functions: Asymptotes & Holes · 5

ANSWER

$x = -5$

Rational Functions: Asymptotes & Holes · 8

ANSWER

$y = 0$

Rational Functions: Asymptotes & Holes · 7

ANSWER

$y = 0$

Find the vertical asymptote of $f(x) = \frac{2x - 9}{x + 4}$.

Find the horizontal asymptote of $f(x) = \frac{-x^2 + 3x + 3}{3x^2 + 8}$.

Find the vertical asymptotes of $f(x) = \frac{x - 8}{x^2 - 9x + 20}$.

The graph of $f(x) = \frac{x^2 - 4x - 21}{x + 3}$ has a hole at $x = -3$. Find the y-coordinate of the hole.

Find the x-intercept of $f(x) = \frac{4x - 32}{x + 7}$. Write it as $x = a$.

Find the horizontal asymptote of $f(x) = \frac{6x + 6}{2x^2 + 7}$.

Find the vertical asymptote of $f(x) = \frac{5x + 7}{x + 6}$.

Find the horizontal asymptote of $f(x) = \frac{2x - 5}{2x^2 + 5x + 9}$.

Rational Functions: Asymptotes & Holes · 10

ANSWER

$$y = -\frac{1}{3}$$

Rational Functions: Asymptotes & Holes · 9

ANSWER

$$x = -4$$

Rational Functions: Asymptotes & Holes · 12

ANSWER

$$-10$$

Rational Functions: Asymptotes & Holes · 11

ANSWER

$$x = 4 \text{ or } x = 5$$

Rational Functions: Asymptotes & Holes · 14

ANSWER

$$y = 0$$

Rational Functions: Asymptotes & Holes · 13

ANSWER

$$x = 8$$

Rational Functions: Asymptotes & Holes · 16

ANSWER

$$y = 0$$

Rational Functions: Asymptotes & Holes · 15

ANSWER

$$x = -6$$

Find the vertical asymptotes of $f(x) = \dfrac{x - 2}{x^2 - x - 6}$.

The graph of $f(x) = \dfrac{x^2 + 14x + 45}{x + 5}$ has a hole at $x = -5$. Find the y-coordinate of the hole.

Find the slant asymptote of $f(x) = \dfrac{x^2 + 3x + 2}{x - 5}$.

Find the horizontal asymptote of $f(x) = \dfrac{x^2 - x - 1}{4x^2 - 2}$.

Find the slant asymptote of $f(x) = \dfrac{x^2 - 5x + 7}{x - 2}$.

The graph of $f(x) = \dfrac{x^2 + 4x - 12}{x + 6}$ has a hole at $x = -6$. Find the y-coordinate of the hole.

Find the vertical asymptotes of $f(x) = \dfrac{x + 8}{x^2 - 1}$.

The graph of $f(x) = \dfrac{x^2 - 4x - 12}{x + 2}$ has a hole at $x = -2$. Find the y-coordinate of the hole.

Rational Functions: Asymptotes & Holes · 18

ANSWER

4

Rational Functions: Asymptotes & Holes · 17

ANSWER

x = -2 or x = 3

Rational Functions: Asymptotes & Holes · 20

ANSWER

$$y = \frac{1}{4}$$

Rational Functions: Asymptotes & Holes · 19

ANSWER

y = x + 8

Rational Functions: Asymptotes & Holes · 22

ANSWER

-8

Rational Functions: Asymptotes & Holes · 21

ANSWER

y = x - 3

Rational Functions: Asymptotes & Holes · 24

ANSWER

-8

Rational Functions: Asymptotes & Holes · 23

ANSWER

x = -1 or x = 1