



Identify vertical and horizontal asymptotes

1

Does this rational function have a vertical asymptote?

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

A

No

B

Yes

2

Is there a hole or a vertical asymptote at $x=4$ when this polynomial is divided by this binomial?

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

A Vertical Asymptote

B Neither

C Hole

3

What is the vertical asymptote of this rational function?

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

A

Vertical asymptote at $x = 4$

B

Vertical asymptote at $x = 2$

C

Vertical asymptote at $x = -2$

D

Vertical asymptote at $x = -4$ **4**

What are the vertical asymptotes of this rational function?

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

A

Vertical asymptote at $x = 3$

B

Vertical asymptote at $x = -3$

C

Vertical asymptote at $x = 4$

D

Vertical asymptotes at $x = -3, x = 1$ **5**

Is there a hole or a vertical asymptote at $x=4$ when this polynomial is divided by this binomial?

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

A Hole

B Neither

C Vertical Asymptote

**Identify vertical and horizontal asymptotes****6**

What is the horizontal asymptote of this rational function?

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

A

Horizontal asymptote at $y = -3$

B

Horizontal asymptote at $y = -1$

C

Horizontal asymptote at $y = 0$

D

Horizontal asymptote at $y = -5$

7

Vertical Asymptote Does Not Exist

A

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

B

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

C

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

D

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

8

What are the vertical asymptotes of this rational function?

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

A

Vertical asymptotes at $x = -2, x = 1$

B

Vertical asymptote at $x = -3$

C

Vertical asymptote at $x = 3$

D

Vertical asymptotes at $x = -1, x = 2$

9

What is the horizontal asymptote of this rational function?

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

A

Horizontal asymptote at $y = \frac{-2}{5}$

B

Horizontal asymptote at $y = 0$

C

Horizontal asymptote at $y = \frac{-8}{3}$

D

Horizontal asymptote at $y = \frac{-5}{2}$

**Identify vertical and horizontal asymptotes****10**

What is the vertical asymptote of this rational function?

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

A

Vertical asymptote at $x = -4$

B

Vertical asymptote at $x = 2$

C

Vertical asymptote at $x = -2$

D

Vertical asymptote at $x = 1$

11

What are the vertical asymptotes of this rational function?

$$f(x) = \frac{x}{x^2 + 7x + 12}$$

A

Vertical asymptote at $x = 0$

B

Vertical asymptotes at $x = -3, x = 4$

C

Vertical asymptotes at $x = -4, x = -3$

D

Vertical asymptotes at $x = 3, x = 4$

12

What is the horizontal asymptote of this rational function?

$$f(x) = \frac{6x^2 - 12x}{5x^2 + 15x + 10}$$

A

Horizontal asymptote at $y = \frac{6}{5}$

B

Horizontal asymptote at $y = 0$

C

Horizontal asymptote at $y = \frac{-5}{4}$

D

Horizontal asymptote at $y = 1$