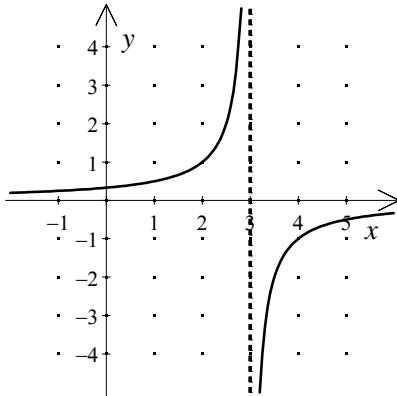


NAME: _____

1. Which points are restricted from the domain of the function graphed below?



2. Find the vertical asymptote(s) of the graph of $f(x) = \frac{x^2 - 9}{(x+3)(x-1)}$.

[A] $x = 1, -3$ [B] $x = 1$ [C] $y = 1$ [D] $y = 1, -1$

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

[A] $y = 1$ [B] $y = 1, -1$ [C] $x = -9, -2$ [D] $x = -9$

4. Find the horizontal asymptote of the graph of $f(x) = \frac{3}{x-2}$.

[A] $x = 0$ [B] $y = 3$ [C] $x = 2$ [D] $y = 0$

5. What are the asymptotes of the function $y = -\frac{3}{(x+1)} - 2$?

[A] $x = -1, y = -2$ [B] $x = -1, y = -3$ [C] $x = 1, y = 2$ [D] $x = 1, y = -2$

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6. Write the equations of the horizontal asymptote and vertical asymptote of the graph $y = \frac{3x}{x+6}$.
7. Write the equations of the horizontal asymptote and vertical asymptote of the graph $y = \frac{4x}{x-8}$.
8. Graph the function on your graphing calculator and find the asymptotes. $f(x) = \frac{x^4}{x^2-4}$
9. What are the discontinuities of the function $y = \frac{(x-1)(x-2)(x+3)}{(x+1)(x-2)}$? Classify them as asymptotes or removable discontinuities.
10. Compare the quantity in Column A with the quantity in Column B.
- | <u>Column A</u> | <u>Column B</u> |
|-----------------------------|-----------------------------|
| the number of asymptotes of | the number of asymptotes of |
| $F(x) = \frac{x}{(x^2-9)}$ | $G(x) = \frac{(x^2-9)}{x}$ |
- [A] The quantity in Column A is greater. [B] The quantity in Column B is greater.
[C] The two quantities are equal.
[D] The relationship cannot be determined on the basis of the information supplied.

[1] $x = 3$ _____

[2] B _____

[3] D _____

[4] D _____

[5] A _____

[6] $y = 3; x = -6$ _____

[7] $y = 4; x = 8$ _____

[8] $x = 2$ and $x = -2$ are vertical asymptotes. _____

[9] $x = -1$ is an asymptote and $x = 2$ is a removable discontinuity. _____

[10] A _____