

PreCalc 30

Quiz 9 Rational Functions

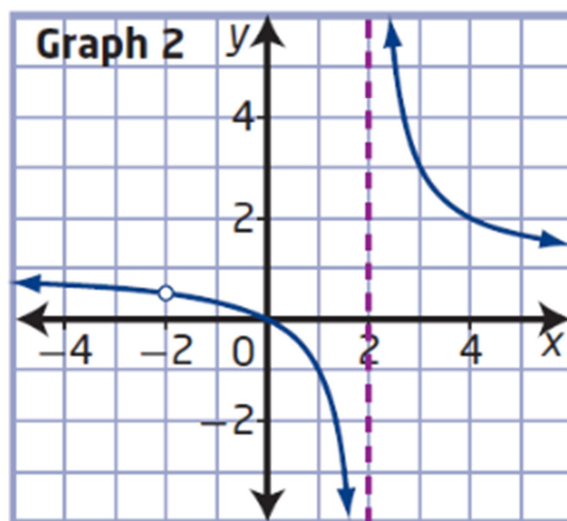
Name

30.11v13 LK	2	3	4
<p>Outcome 9a: I can demonstrate understanding of rational functions.</p>	<p>Definitions:</p> <ul style="list-style-type: none"> • Rational expression • Asymptote • Hole <p>Identify from a graph:</p> <ul style="list-style-type: none"> • Roots and holes • Asymptotes • Domain and Range • End behavior <p>Find solutions to rational equations using technology</p>	<p>I can match a set of equations of rational functions to their corresponding graphs</p> <p>Determine asymptotes and holes from an equation</p> <p>Write the equation given a graph</p> <p>Graph the function given a set of characteristics</p>	<p>In addition to demonstrating level 3 performance, I am capable of in depth inferences and applications that go beyond what was taught in class</p>

Level 2

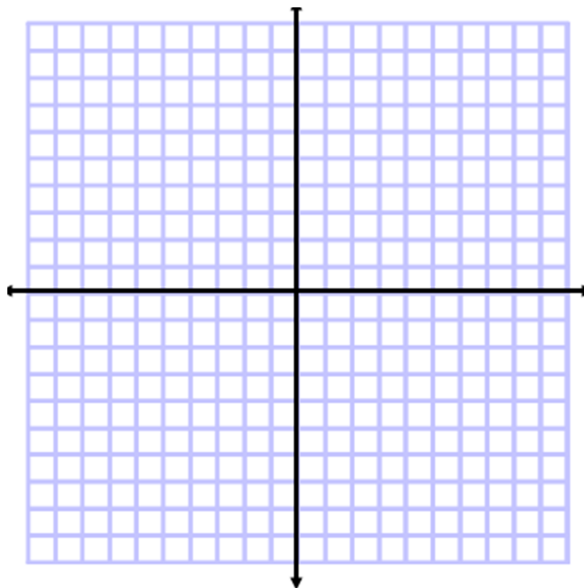
1. For the following graph, identify the following:

- a. Vertical asymptotes
- b. Horizontal asymptotes
- c. Holes
- d. End behavior
- e. Domain
- f. Range



2. Using technology, find the solution to the following rational equation. Sketch the graph that you have obtained on your calculator and clearly state solutions.

$$\frac{x^2 - 3x - 7}{3 - 2x} = x - 1$$



Level 3

3. For the following rational function, state the following characteristics:

$$y = \frac{x^2 - x - 2}{x^2 - 1}$$

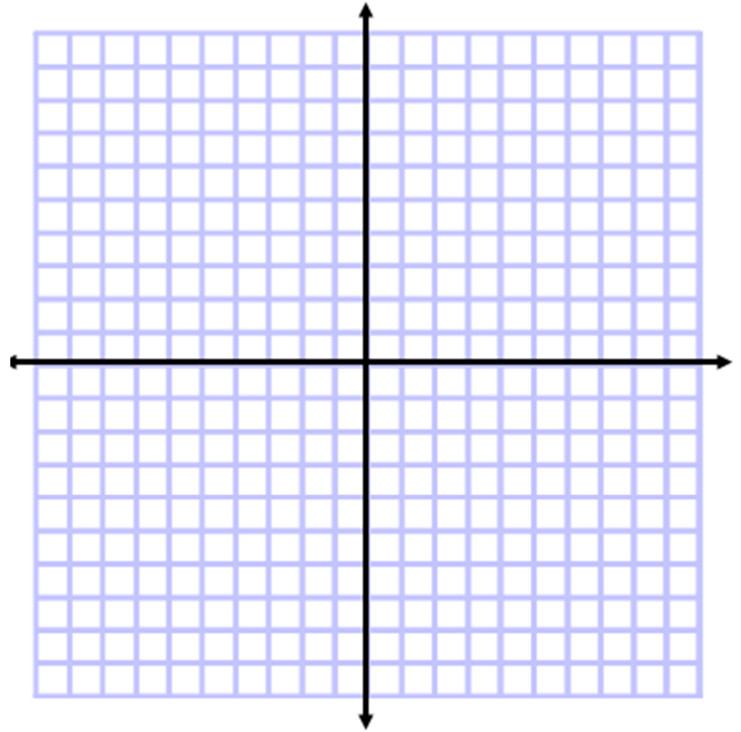
- a. Vertical Asymptotes:

- b. Horizontal asymptotes

- c. Holes:

4. Graph the following function. Be sure to give the equations of all asymptotes.

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



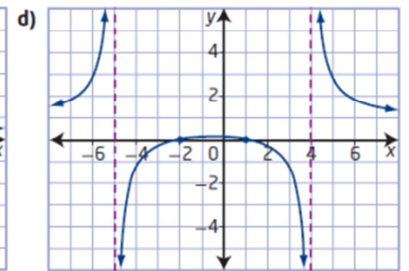
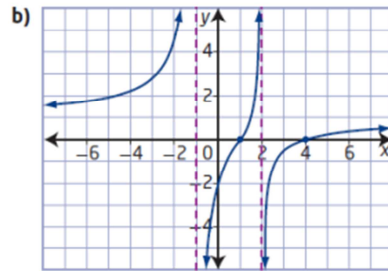
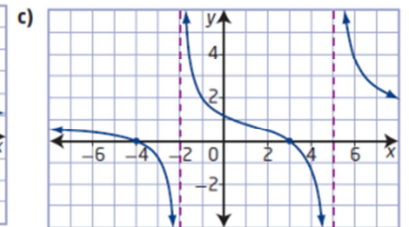
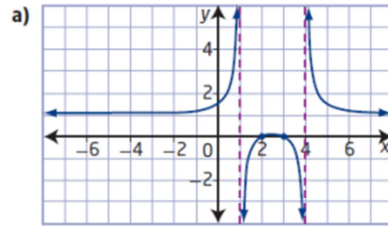
5. Match each graph below with one of the following equations. Write the letter on the graph.

A $f(x) = \frac{x^2 + x - 2}{x^2 + x - 20}$

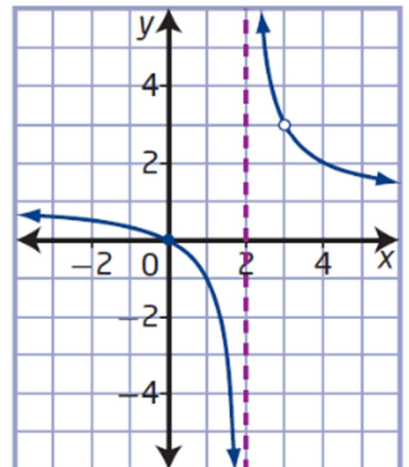
B $g(x) = \frac{x^2 - 5x + 4}{x^2 - x - 2}$

C $h(x) = \frac{x^2 - 5x + 6}{x^2 - 5x + 4}$

D $j(x) = \frac{x^2 + x - 12}{x^2 - 3x - 10}$



6. Write the equation for the graph of the rational function below.



Level 4

7. If the function $y = \frac{x^2 + bx + c}{4x^2 + 29x + c}$, where b and c are real numbers, has a point of discontinuity at _____, where does it have x-intercept(s) and vertical asymptote(s), if any?

$$\left(-8, \frac{11}{35}\right)$$