

SM3 A3.G Different Representations.

Name \_\_\_\_\_

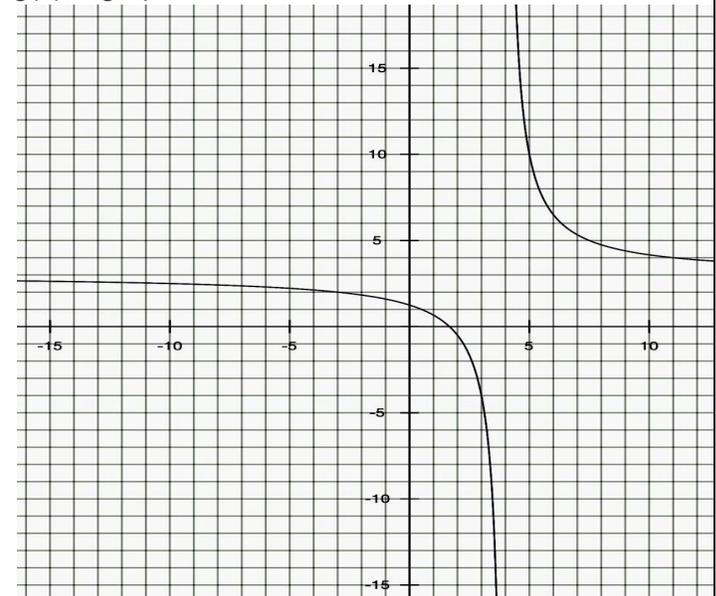
1. Compare the following 2 rational functions. **Which has a larger rate of change** (if you ignore the negatives) **over the interval [5,11]**? **JUSTIFY** your results, by writing at **LEAST 2 sentences** explaining how you know.

x	f(x)
3	1
4	Error
5	11
6	8.5
9	7
11	6.7

2. Which of the following equations would best fit the table above;

- A.  $y = \frac{1}{x-3} + 5$
- B.  $y = \frac{-4}{x-4} - 3$
- C.  $y = \frac{2}{x+4}$
- D.  $y = \frac{5}{x-4} + 6$

g(x) is graphed below

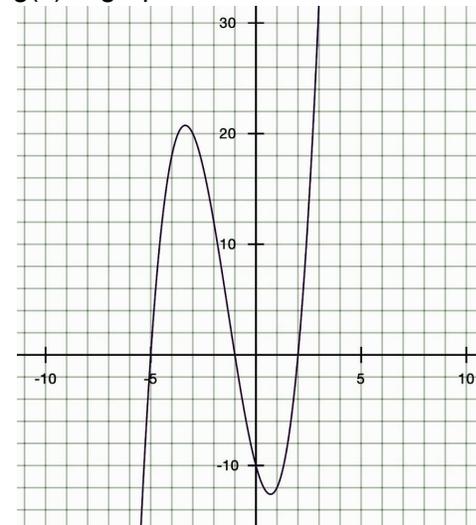


3. Write the equation of the graph above:

4. Compare the following. Which has a larger local maximum?

$$f(x) = x^3 - 3x^2 - 13x + 15$$

g(x) is graphed below.



5. Using the above 2 functions. which has a larger rate of change (If you ignore the negatives) over the interval [-2,0]? **JUSTIFY YOUR RESULTS.**

6. Write the equation of the graph shown above in Expanded Form.

7. Compare the following 2 functions. Which has a greater rate of change over the interval [3,7]?

$$f(x) = \frac{-6}{x-1} + 3$$

JUSTIFY your results. At least 2 complete sentences.

$g(x)$  is in the table below.

x	g(x)
1	9
2	Error
3	-1
4	1.5
5	2.33
7	3
12	3.5

8. Graph using Asymptotes, x-Intercepts, and Transformations.

$$f(x) = \frac{4x+14}{x+3}$$

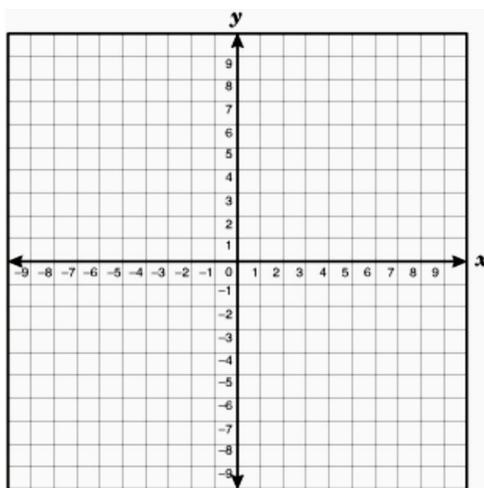
VA:

HA:

x-Intercepts:

y-Intercepts:

Transformation Form:



9. Graph using Asymptotes, x-Intercepts, and Transformations.

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

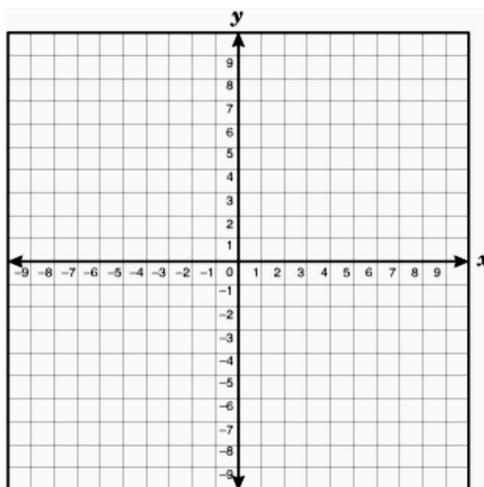
VA:

HA:

x-Intercept(s):

y-Intercept(s):

Transformation Form:



10. Graph Using Asymptotes & Intercepts.

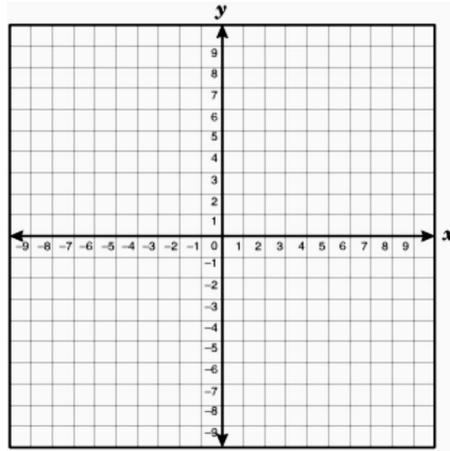
$$f(x) = \frac{2}{x^2-16}$$

VA:

HA:

x-Intercept(s):

y-Intercept(s):



11. Domain of

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

12. Convert to quotient form by Adding:

$$\frac{-3}{x-5} + 4$$

13. Divide:

$$\frac{2x^2-8x}{10x^2} \div \frac{x^2-1x-12}{x^2-9}$$

14. Solve:

$$\frac{4}{x-5} + \frac{x+2}{x-1} = \frac{6}{x^2-6x+5}$$

DOMAIN:

DOMAIN:

15. Subtract:

$$\frac{11x-2}{x^2-4x-12} - \frac{8}{x-6}$$

16. Find the zeros of  $f(x) = x^2 - 4x - 21$

Then write in FACTORED form:

DOMAIN:

$$y = (x \quad)(x \quad)$$

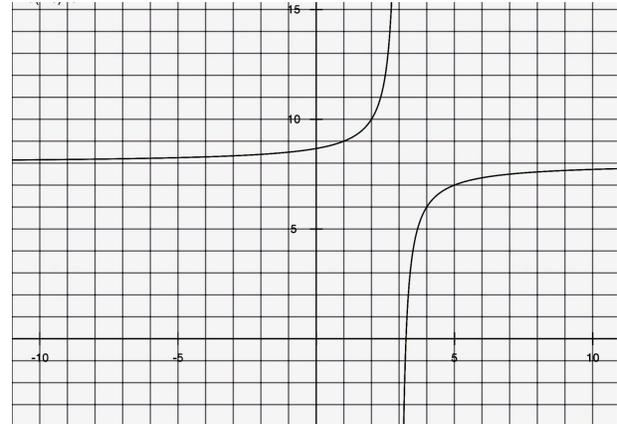
17. Compare the following 2 rational functions. **Which has a larger rate of change** (if you ignore the negatives) **over the interval [4,5]**? **JUSTIFY** your results, by writing at LEAST 2 sentences explaining how you know.

x	f(x)
1	6.5
2	9
3	Error
4	-1
5	1.5
8	3

18. Which of the following equations would best fit the table above;

- E.  $y = \frac{1}{x-3} + 2$   
 F.  $y = \frac{-5}{x-3} + 4$   
 G.  $y = \frac{5}{x+3}$   
 H.  $y = \frac{5}{x-1} + 9$

g(x) is graphed below.



19. Write the equation of the graph above:

20. Use the table to answer the questions to the right:

x	f(x)
-6	1
-5	-2
-4	Error
-3	10
-2	7
0	5.5
2	5
6	4.6
8	4.5

20. Where is the vertical asymptote of f(x)?

Where is the horizontal asymptote of f(x)?

What is the scale factor of f(x)?

Which equation best fits the table?

- A.  $f(x) = \frac{6}{x+7} - 4$   
 B.  $f(x) = \frac{6}{x+4} + 4$   
 C.  $f(x) = \frac{3}{x-4} - 8$   
 D.  $f(x) = \frac{-2}{x+4} - 4$

21. Use the table to answer the questions to the right.:

x	f(x)
-2	4.4
-1	4.5
1	5
2	6
3	Error
4	2
5	3
7	3.5
x	f(x)

21. Where is the vertical asymptote of f(x)?

Where is the horizontal asymptote of f(x)?

What is the scale factor of f(x)?

Which equation best fits the table?

- A.  $f(x) = \frac{4}{x-3} - 5$   
 B.  $f(x) = \frac{-2}{x+3} + 7$   
 C.  $f(x) = \frac{-2}{x-3} + 4$   
 D.  $f(x) = \frac{7}{x+4} - 3$