Rational Functions Match Game (project)
The Functions/Equations

$$f(x) = \frac{x^2 + 3x - 40}{25 - x^2}$$

1

$$y = \frac{\dfrac{4x}{x+6}}{\dfrac{x^2 - 3x}{x^2 + 3x - 18}}$$

2

$$y = \frac{x^2 - 4x - 21}{x^2 - 6x + 8} \bullet \frac{x - 4}{x^2 - 2x - 35}$$
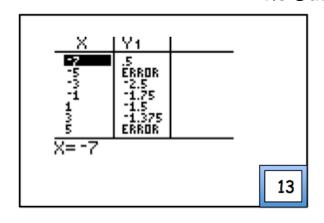
3

$$y = \frac{6x^3 + 11x^2 + 4x}{x}$$
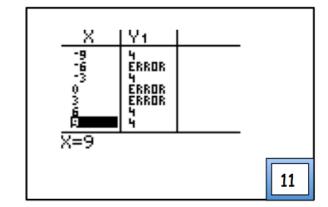
4

$$y = \frac{3x + 2}{x^2 - 16} - \frac{7}{6x + 24}$$

5

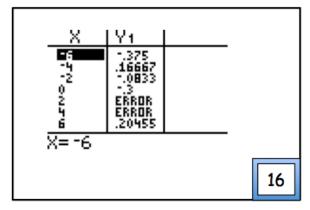$$f(x) = \frac{4 + \dfrac{2}{x}}{3 - \dfrac{2}{x}}$$

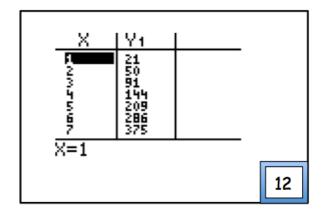**6**

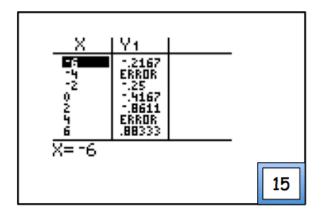$$f(x) = \frac{2x^2 + 9x - 5}{x - 3}$$

7

$$y = \frac{2100}{x}$$

8

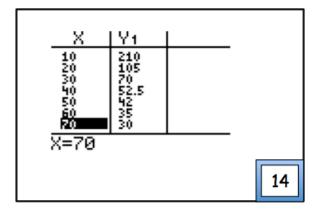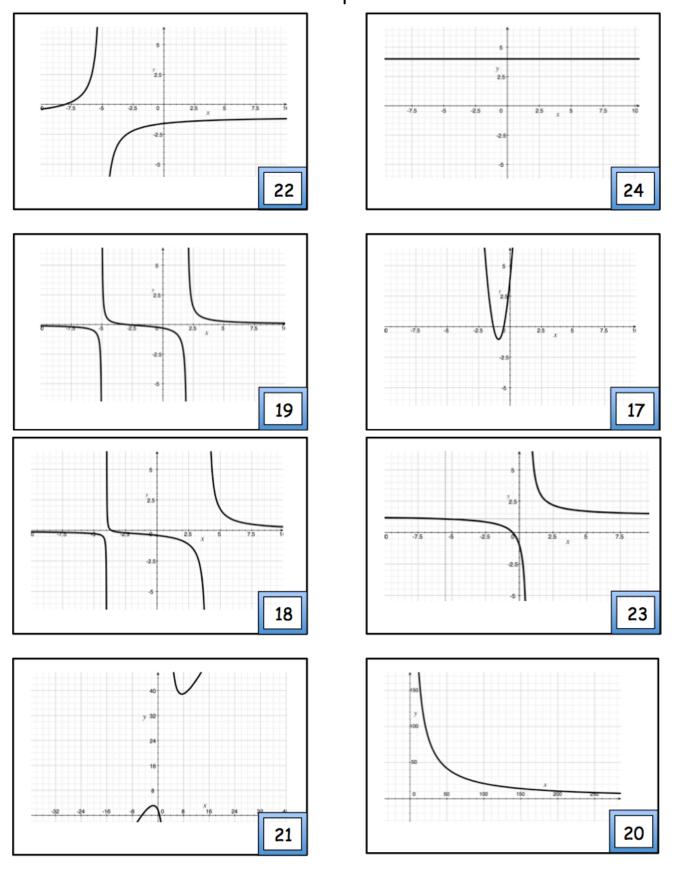# Rational Functions Match Game (project)
The Data Tables

Card 13

X	Y1
-7	.5
-5	ERROR
-3	-2.5
-1	-1.75
1	-1.5
3	-1.375
5	ERROR

X= -7

Card 11

X	Y1
-9	4
-6	ERROR
-3	4
0	ERROR
3	ERROR
6	4
9	4

X=9

Card 16

X	Y1
-6	-.375
-4	.16667
-2	-.0833
0	-.3
2	ERROR
4	ERROR
6	.20455

X= -6

Card 12

X	Y1
1	21
2	50
3	91
4	144
5	209
6	286
7	375

X=1

Card 15

X	Y1
-6	-.2167
-4	ERROR
-2	-.25
0	-.4167
2	-.8611
4	ERROR
6	.88333

X= -6

Card 10

X	Y1
-.3333	-.2222
0	ERROR
.33333	-3.333
.66667	ERROR
1	6
1.3333	3.6667
1.6667	2.8889

X= -.33333333333

Card 9

X	Y1
0	1.6667
1	-3
2	-21
3	ERROR
4	63
5	45
6	40.333

X=0

Card 14

X	Y1
10	210
20	105
30	70
40	52.5
50	42
60	35
70	30

X=70

Rational Functions Match Game (project)
The Graphs

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Rational Functions Match Game (project)
The Descriptions

As $x \to -5$ from the left, $y \to \infty$.

As $x \to -5$ from the right, $y \to -\infty$.

As $x \to 5$ from either side, $y \to -1.3$.

26

This graph has no x-intercept and no y-intercept.

28

This graph is decreasing over its entire domain.

30

This function could be used to find the area of the rectangular base of a box of height x.

25

This function has vertical asymptotes at $x = -4$ and $x = 4$.

It has a horizontal asymptote at $y = 0$.

27

This function has an x-intercept of $-\frac{1}{2}$.

It has a horizontal asymptote of $y = \frac{4}{3}$.

31

This graph has no horizontal asymptote.

$y \to \infty$ as $x \to \infty$.

32

y could represent the time (in hours) that it takes to reach Wyoming as a function of how fast one is driving, x, in mph.

29