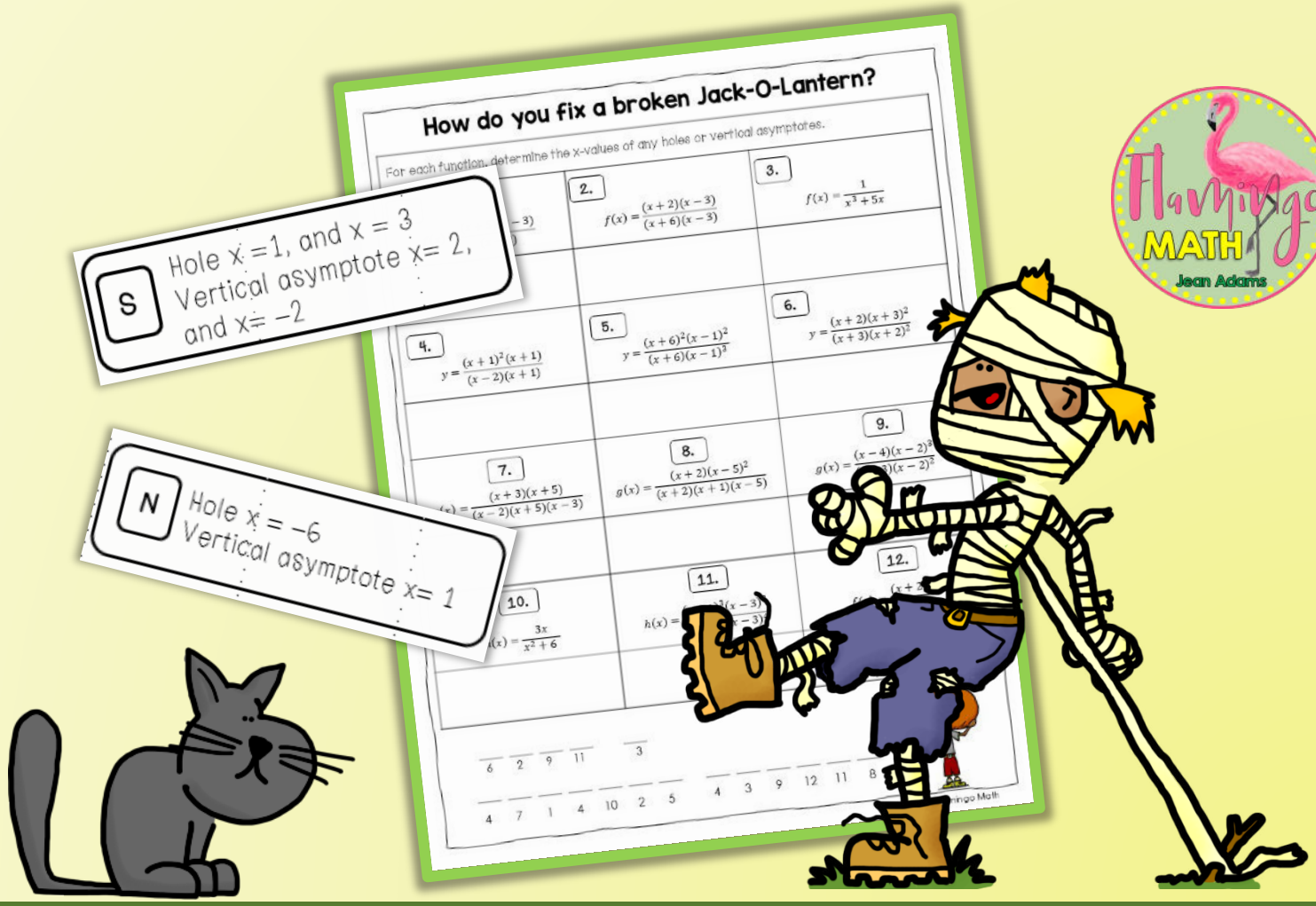
AP® Precalculus

Rational Functions

Halloween Scramble



Product Pages

www.FlamingoMath.com

Directions for students:

1. Solve the 12 Rational Functions to find the x values for any holes or vertical asymptotes on your student worksheet.
2. Find your solution set that match your work results from the choices below. Record the letter that corresponds to the problem number in the spaces provided, or cut and paste into each problem, to answer the Halloween riddle.
3. Answer the riddle at the bottom of the question page.

Answer Choices can be used as cut-and-paste or fill in the blank:

A Vertical asymptote x= 3	C Hole x = −2 Vertical asymptote x= 0, and x=2	D Hole x= −1 Vertical asymptote x= 0
E Hole x =2 Vertical asymptote x= 1 and x= −1	H Hole x = −1 Vertical asymptote x= 5	I No x = 2 Vertical asymptote x= −6
K No holes No Vertical asymptotes	L Hole x = −3 Vertical asymptote x= 1	M Vertical asymptote x=2
N Hole x = −6 Vertical asymptote x= 1	O No x = 5 Vertical asymptote x= −4	P No x = −1 Vertical asymptote x= 2
S No x = 1, and x = 2 Vertical asymptote x= 2 and x= −2	T Holes x = 2 Vertical asymptote x= −3	U No x = −5 Vertical asymptote x= 2, and x= 3
W No x = −2 Vertical asymptote x= 2	Y Hole x = −5 Vertical asymptote x= −2	J Holes x = 5 and x= −2 Vertical asymptote x= −1

How do you fix a broken Jack-O-Lantern?

For each function, determine the x-values of any holes or vertical asymptotes.

1. $f(x)=\frac{(x+5)(x-3)}{(x-2)}$	2. $f(x)=\frac{(x+2)(x-3)}{(x+6)(x-3)}$	3. $f(x)=\frac{1}{x^3+5x}$
4. $y=\frac{(x+1)^2(x+1)}{(x-2)(x+1)}$	5. $y=\frac{(x+6)^2(x-1)^2}{(x+6)(x-1)^3}$	6. $y=\frac{(x+2)(x+3)^2}{(x+3)(x+2)^2}$
7. $g(x)=\frac{(x+3)(x+5)}{(x-2)(x+5)(x-3)}$	8. $g(x)=\frac{(x+2)(x-5)^2}{(x+2)(x+1)(x-5)}$	9. $g(x)=\frac{(x-4)(x-2)^3}{(x+3)(x-2)^2}$
10. $h(x)=\frac{3x}{x^2+6}$	11. $h(x)=\frac{(x+1)^3(x-3)^2}{(x+1)^2(x-3)^4}$	12. $f(x)=\frac{(x+2)}{x^3-4x}$

6 2 9 11 3

4 7 1 4 10 2 5 4 3 9 12 11 8



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Rational Functions Scramble

Name _____

1.	2.
3.	4.
5.	6.
7.	8.
9.	10.
11.	12.

Extension Activity

Name _____

For each of the following rational functions, identify and plot any x values where the function has a hole or a vertical asymptote. Give a reason for each answer.

1. $f(x)=\frac{(x+2)(x-5)^2}{3x(x-6)}$

2. $g(x)=\frac{x^2+3x-10}{x^3+12x+36}$

3. $h(x)=\frac{x^2-16}{x^3+x^2-12x}$

4. $k(x)=\frac{(x+4)^3(x-5)^2}{(x+4)^4(x-5)^2}$

Students love Riddles!