Alg 2B

Name: Key

Ch 8 Practice Test

Per:_____ Date:_____

Show all work on these pages and circle your answers. Read the instructions for each set of questions, and have fun ☺

Provide a short description for the following:

1) What is a removable discontinuity? see the quiz!

2) What is a non-removable discontinuity?

Multiply or divide as indicated. State any restrictions.

3) $\frac{x^2-2x-24}{x^2+7x+12} \div \frac{x-6}{x^2-1}$

$\frac{(x-6)(x+4)}{(x+3)(x+4)} \cdot \frac{(x-1)(x+1)}{x-6}$

$\frac{(x-1)(x+1)}{x+3}, x \neq \{-3,-4,6\}$

4) $\frac{x^2-1}{5x-5} \times \frac{10}{3x^2+6x+3}$

$\frac{(x+1)(x-1)}{5(x-1)} \quad \frac{10^2}{3(x+1)(x+1)}$

$\frac{2}{3(x+1)}, x \neq \pm 1$

Add or subtract as indicated. State any restrictions.

5) $\frac{x-7}{x^2+4x-5} - \frac{x-9}{x^2+3x-10}$

$(x+5)(x-1) \quad (x+5)(x-2)$

$(x-2) \quad (x-1)$

$\frac{x^2-9x+14-(x^2-10x+9)}{(x+5)(x-1)(x-2)}$

$\frac{x^2-9x+14-x^2+10x-9}{(x+5)(x-1)(x-2)} \Rightarrow \frac{x+5}{(x+5)(x-1)(x-2)}, x = \{-5,1,2\}$

6) $\frac{3x}{x^2-4} + \frac{6}{x+2} \cdot \frac{x-2}{x-2}$

$(x+2)$

$(x-2)$

$\frac{3x+6x-12}{(x+2)(x-2)} = \frac{9x-12}{(x+2)(x-2)}$

$x \neq \pm 2$

~more~

Solve for x. State any restrictions.

7) $\frac{1}{x}+\frac{x}{6}=\frac{18}{x}$

$6x + x^2 = 108$

$x^2+6x-108=0$

$(x+12)(x-9)=0$

$x=\{-12, 9\}$

8) $\frac{2}{x+3}-\frac{1}{x}=\frac{-6}{x(x+3)}$

$2x-x-3=-6$

$x=-3$, ← restricted,

NO SOLUTION

For each of the following find the vertical asymptotes, horizontal asymptotes, and holes if they exist. Sketch the graph.

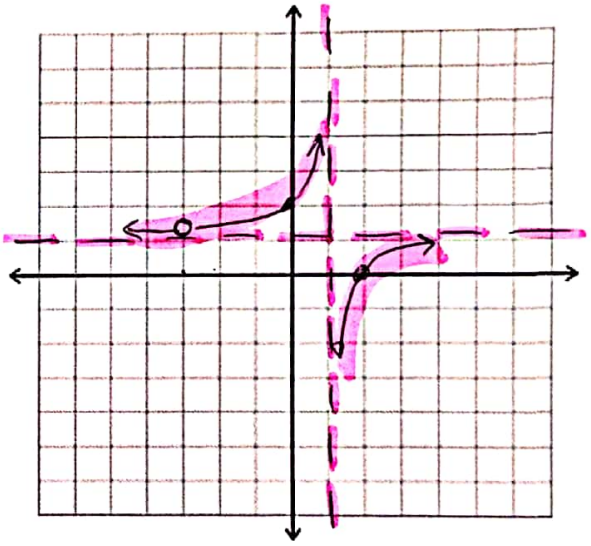
9) $y=\frac{(x+3)(x-2)}{(x+3)(x-1)}$

vertical asymptote $x=1$

horizontal asymptote $y=1$

hole $(-3, 5/4)$

$\frac{-3-2}{-3-1}$

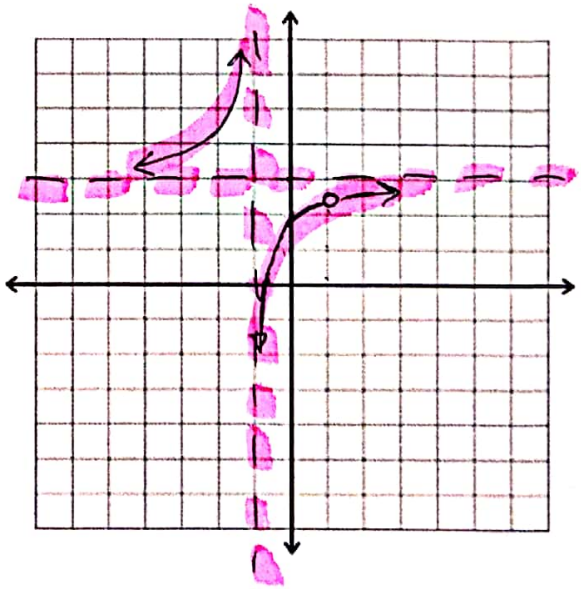


10) $f(x)=\frac{3x^2-x-2}{x^2-1}$ $\frac{(3x+2)(x-1)}{(x+1)(x-1)}$

vertical asymptote $x=-1$

horizontal asymptote $y=3$

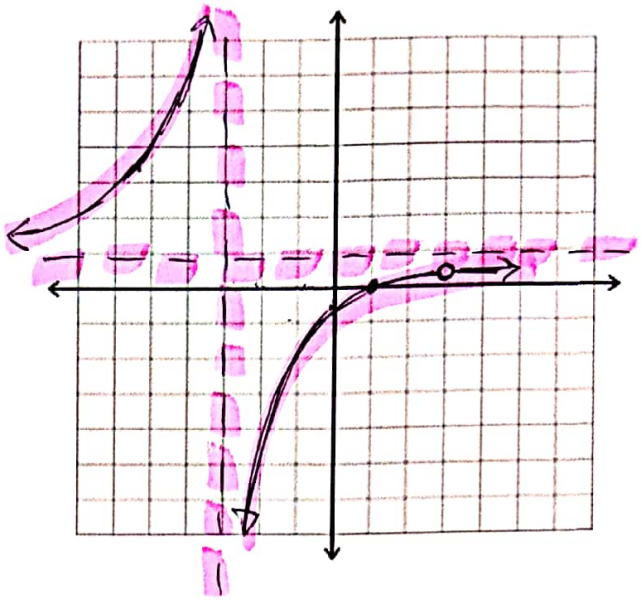
hole $x=1; (1, \frac{5}{2})$



~more~

For each of the following find the vertical asymptotes, horizontal asymptotes, and holes if they exist. Sketch the graph. (continued)

11) $f(x) = \frac{x^2-4x+3}{x^2-9}$ $\frac{(x-3)(x-1)}{(x-3)(x+3)}$



vertical asymptote $x=-3$

horizontal asymptote $y=1$

hole $(3, 1/3)$

Give a possible rational function, f(x), that ...

12) ... has a hole at x=5, and a vertical asymptote at x= – 2 (make one up).

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

~end~