

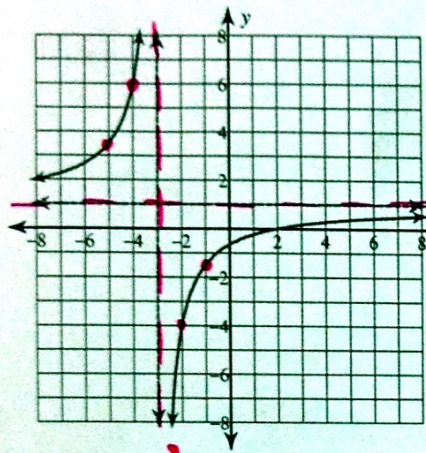
5A-5D Review - SHOW ALL WORK

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Date _____ Period _____

Graph and state the domain, range, intercepts, asymptotes, and end behavior.

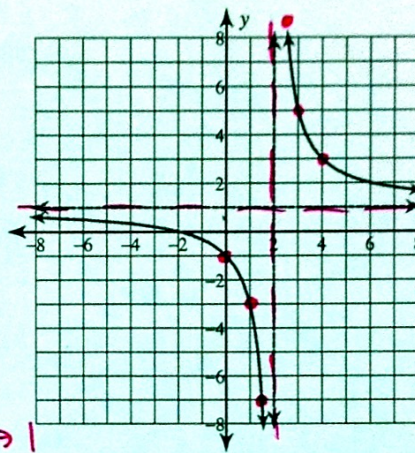
$$1) f(x) = \frac{x-2}{x+3} = \frac{-5}{x+3} + 1$$



$D: \mathbb{R}, x \neq -3$
 $R: \mathbb{R}, y \neq 1$
 $x\text{-int: } 2$
 $y\text{-int: } -2/3$
 $\text{asym: } x = -3$
 $y = 1$

$EB:$
 $\text{as } x \rightarrow +\infty, f(x) \rightarrow 1$
 $\text{as } x \rightarrow -\infty, f(x) \rightarrow 1$

$$2) f(x) = \frac{4}{x-2} + 1$$



$D: \mathbb{R}, x \neq 2$
 $R: \mathbb{R}, y \neq 1$
 $x\text{-int: } -2$
 $y\text{-int: } -1$
 $\text{asym: } x = 2$
 $y = 1$

$EB:$
 $\text{as } x \rightarrow +\infty, f(x) \rightarrow 1$
 $\text{as } x \rightarrow -\infty, f(x) \rightarrow 1$

Simplify each expression.

$$3) \frac{7}{6k} \cdot \frac{2k^2}{3}$$

$$\frac{7k}{9}$$

$$4) \frac{4}{3m^3 - 9m^2} - \frac{m+6}{3m^3 - 9m^2}$$

$$\frac{-2-m}{3m^3 - 9m^2}$$

$$5) \frac{b+7}{b^2+3b-28} \cdot \frac{b-4}{b-9}$$

$$\frac{1}{b-9}$$

$$6) \frac{10}{r+4} \cdot \frac{r+4}{3r^2-6r}$$

$$\frac{10}{3r(r-2)}$$

$$7) \frac{3}{x-4} + \frac{5}{x+3}$$

$$\frac{8x-11}{(x-4)(x+3)}$$

$$8) \frac{x+4y}{8x^3y^2} - \frac{x-2y}{8x^3y^2}$$

$$\frac{3}{4x^3y}$$

$$9) \frac{2k+4}{k^2+10k+16}$$

$$\frac{2}{k+8}$$

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

$$\frac{2x+8y-15}{12y^2}$$

$$11) \frac{3}{a+5} + \frac{3a}{2a+2}$$

$$\frac{21a+6+3a^2}{2(a+5)(a+1)}$$

$$12) \frac{5v}{6} - \frac{2}{2v+5}$$

$$\frac{10v^2+25v-12}{6(2v+5)}$$

$$13) \frac{6}{3} - \frac{x+3}{3x+12}$$

$$\frac{5x+21}{3(x+4)}$$

$$14) \frac{6x}{3x^2-12x} + \frac{5}{3}$$

$$\frac{-14+5x}{3(x-4)}$$

$$15) \frac{1}{n+9} \div \frac{4}{n^2+2n-63}$$

$$\frac{n-7}{4}$$

$$16) \frac{9x^2-90x}{2} \div (x-10)$$

$$\frac{9x}{2}$$

$$17) \frac{2}{x-4} + \frac{6x}{x+2}$$

$$\frac{-22x+4+6x^2}{(x-4)(x+2)}$$

$$18) \frac{24n+24}{25n^4} \cdot \frac{2n+7}{6n^2+27n+21}$$

$$\frac{8}{25n^4}$$

$$19) \frac{10}{5p+35} \cdot \frac{7p^2+63p-70}{70-70p}$$

$$-\frac{(p+10)}{5(p+7)}$$

20) Write the equation of a rational function that has a horizontal asymptote at -4 and a vertical asymptote at 5.

$$f(x) = \frac{1}{x-5} - 4$$