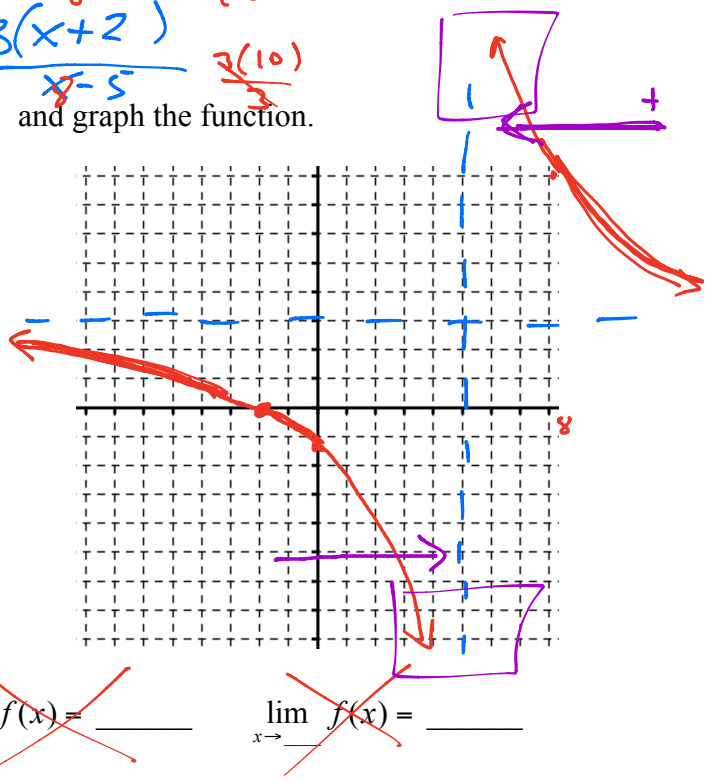
1. Find the following for $f(x) = \frac{3x+6}{x-5}$ and graph the function.

$\frac{3(x+2)}{x-5}$ $\frac{3(10)}{3}$ (8, 10)



a. Domain $\{x \mid x \neq 5\}$

b. Vertical Asymptote(s) $x = 5$

c. x-intercept(s) $(-2, 0)$ $0 = 3x+6$, $-6 = 3x$

d. y-intercept $(0, \frac{6}{5})$

c. End Behavior Asymptote $y = 3$

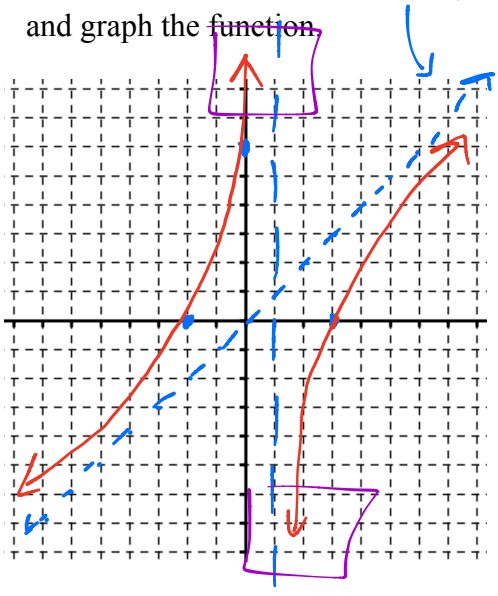
f. Analyze the end behavior using limit notation

$\lim_{x \to -\infty} f(x) =$ 3 (left) $\lim_{x \to \infty} f(x) =$ 3 (right)

g. Analyze the behavior near each vertical asymptote using limit notation.

$\lim_{x \to 5^-} f(x) = -\infty$ $\lim_{x \to 5^+} f(x) = +\infty$ $\lim_{x \to \_\_} f(x) =$ _____ $\lim_{x \to \_\_} f(x) =$ _____

2. Find the following for $f(x) = \frac{x^2 - x - 6}{x-1}$ $\frac{(x+2)(x-3)}{x-1}$ and graph the ~~function~~ oblique



a. Domain $\{x \mid x \neq 1\}$

b. Vertical Asymptote(s) $x = 1$

c. x-intercept(s) $(-2, 0)$ $(3, 0)$

d. y-intercept $(0, 6)$

c. End Behavior Asymptote $y = x$ $y = mx + b$

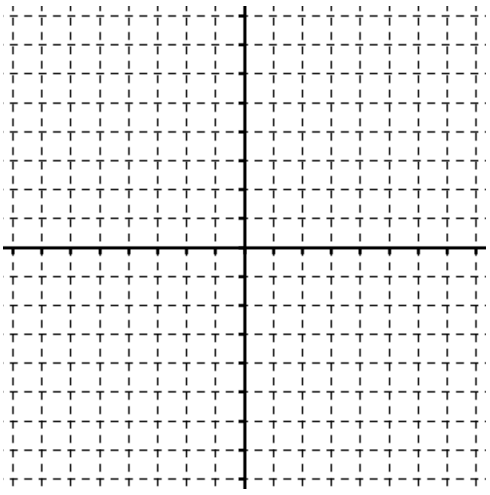
f. Analyze the end behavior using limit notation

$\lim_{x \to -\infty} f(x) = -\infty$ $\lim_{x \to \infty} f(x) = +\infty$

g. Analyze the behavior near each vertical asymptote using limit notation.

$\lim_{x \to 1^-} f(x) = \infty$ $\lim_{x \to 1^+} f(x) = -\infty$ $\lim_{x \to \_\_} f(x) =$ _____ $\lim_{x \to \_\_} f(x) =$ _____

3. Find the following for $f(x) = \dfrac{4|x-8}{x+6}$ and graph the function.



a. Domain _____

b. Vertical Asymptote(s) _____

c. x-intercept(s) _____

d. y-intercept _____

c. End Behavior Asymptote _____

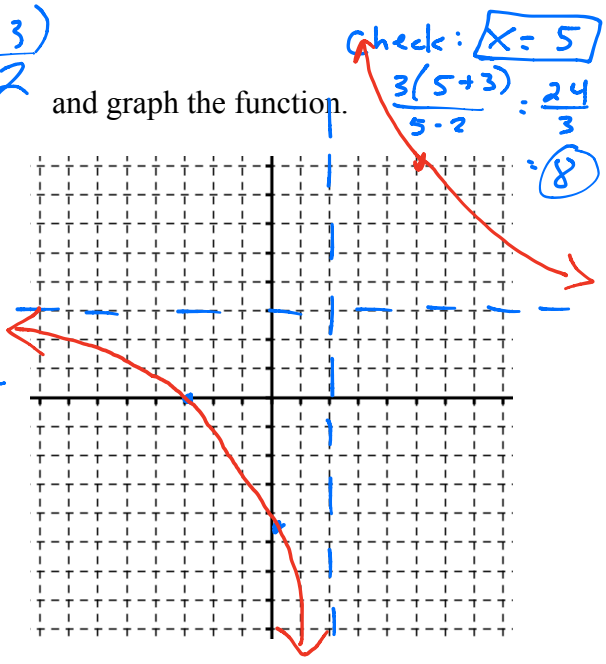
f. Analyze the end behavior using limit notation

$\lim_{x\to-\infty} f(x) =$ _____ $\lim_{x\to\infty} f(x) =$ _____

g. Analyze the behavior near each vertical asymptote using limit notation.

$\lim_{x\to\_\_} f(x) =$ _____ $\lim_{x\to\_\_} f(x) =$ _____ $\lim_{x\to\_\_} f(x) =$ _____ $\lim_{x\to\_\_} f(x) =$ _____

4. Find the following for $f(x) = \dfrac{3x+9}{x-2}$ $\dfrac{3(x+3)}{x-2}$ and graph the function.



a. Domain $\{x \mid x \neq 2\}$

b. Vertical Asymptote(s) $x = 2$

c. x-intercept(s) $(-3, 0)$

d. y-intercept $(0, -\frac{9}{2})$

c. End Behavior Asymptote $y = 3$

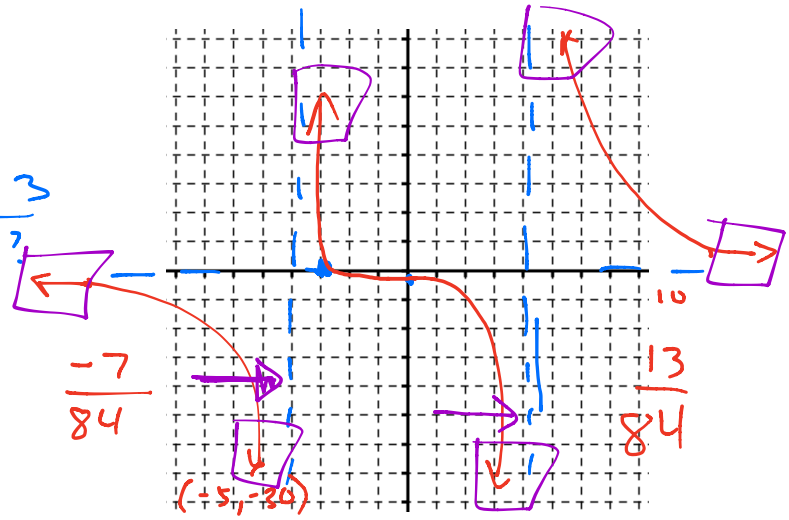
f. Analyze the end behavior using limit notation

$\lim_{x\to-\infty} f(x) =$ 3 $\lim_{x\to\infty} f(x) =$ 3

g. Analyze the behavior near each vertical asymptote using limit notation.

$\lim_{x\to 2^-} f(x) = -\infty$ $\lim_{x\to 2^+} f(x) = +\infty$ $\lim_{x\to\_\_} f(x) =$ _____ $\lim_{x\to\_\_} f(x) =$ _____

5. Find the following for $f(x) = \dfrac{x+3}{x^2-16}$ $\dfrac{x+3}{(x+4)(x-4)}$ and graph the function.



a. Domain $\{x \mid x \neq 4, -4\}$

b. Vertical Asymptote(s) $x = 4$ $x = -4$

c. x-intercept(s) $(-3, 0)$ $0 = x+3$

d. y-intercept $\left(0, -\frac{3}{16}\right)$

c. End Behavior Asymptote $y = 0$

f. Analyze the end behavior using limit notation

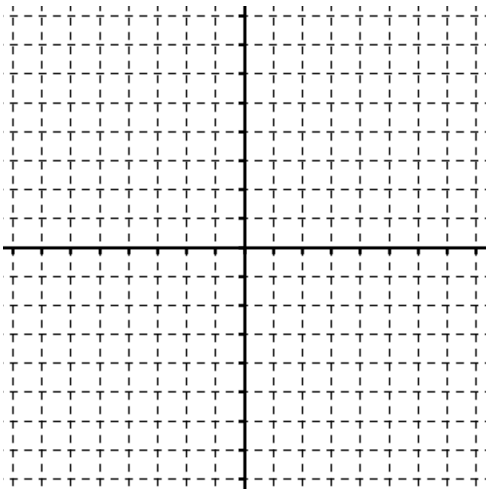
$\lim_{x \to -\infty} f(x) =$ 0 $\lim_{x \to \infty} f(x) =$ 0

Left

g. Analyze the behavior near each vertical asymptote using limit notation.

$\lim_{x \to -4^-} f(x) = -\infty$ $\lim_{x \to -4^+} f(x) = +\infty$ $\lim_{x \to 4^-} f(x) = -\infty$ $\lim_{x \to 4^+} f(x) = +\infty$

6. Find the following for $f(x) =$ and graph the function.



a. Domain _____

b. Vertical Asymptote(s) _____

c. x-intercept(s) _____

d. y-intercept _____

c. End Behavior Asymptote _____

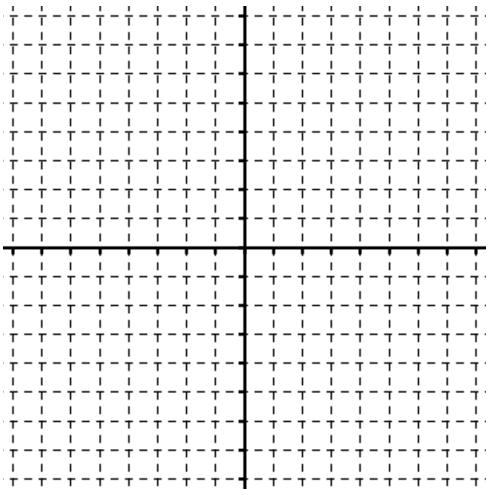
f. Analyze the end behavior using limit notation

$\lim_{x \to -\infty} f(x) =$ _____ $\lim_{x \to \infty} f(x) =$ _____

g. Analyze the behavior near each vertical asymptote using limit notation.

$\lim_{x \to \_\_} f(x) =$ _____ $\lim_{x \to \_\_} f(x) =$ _____ $\lim_{x \to \_\_} f(x) =$ _____ $\lim_{x \to \_\_} f(x) =$ _____

7. Find the following for $f(x)$ = and graph the function.



a. Domain_____

b. Vertical Asymptote(s) _____

c. x-intercept(s) _____

d. y-intercept _____

c. End Behavior Asymptote_____

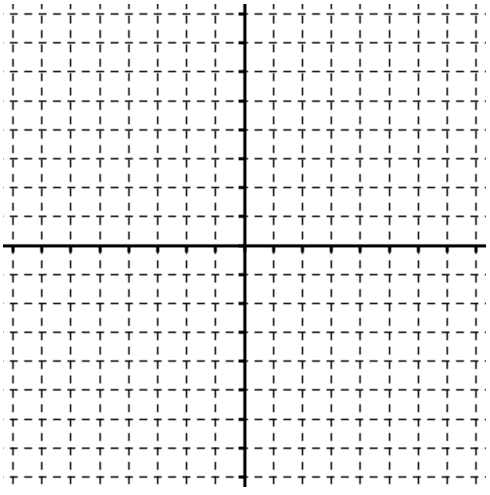
f. Analyze the end behavior using limit notation

$\lim_{x\to-\infty} f(x) =$ _____ $\lim_{x\to\infty} f(x) =$ _____

g. Analyze the behavior near each vertical asymptote using limit notation.

$\lim_{x\to\_\_} f(x) =$ _____ $\lim_{x\to\_\_} f(x) =$ _____ $\lim_{x\to\_\_} f(x) =$ _____ $\lim_{x\to\_\_} f(x) =$ _____

8. Find the following for $f(x)$ = and graph the function.



a. Domain_____

b. Vertical Asymptote(s) _____

c. x-intercept(s) _____

d. y-intercept _____

c. End Behavior Asymptote_____

f. Analyze the end behavior using limit notation

$\lim_{x\to-\infty} f(x) =$ _____ $\lim_{x\to\infty} f(x) =$ _____

g. Analyze the behavior near each vertical asymptote using limit notation.

$\lim_{x\to\_\_} f(x) =$ _____ $\lim_{x\to\_\_} f(x) =$ _____ $\lim_{x\to\_\_} f(x) =$ _____ $\lim_{x\to\_\_} f(x) =$ _____