 Name: _____

5.3.D2 ~ Graphs of Rational Functions

Past due on: _____ Period: _____

Write the rational function in its factored form. Then analyze each rational function for its long-run behavior (end behavior and horizontal asymptote) and its short-run behavior (intercepts, vertical asymptote, and holes). *Write DNE if the function doesn't have a particular property.*

1. $f(x) = \dfrac{x+4}{2x^2+8x}$

$\lim_{x\to-\infty} f(x) =$	$\lim_{x\to\infty} f(x) =$	Horizontal asymptote: $y =$	y-intercept:
Vertical asymptote: $x =$	x-intercept:	Hole:	Domain: $x \neq$

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2. $f(x) = \dfrac{2x^2-6x}{x^2-7x+12}$

$\lim_{x\to-\infty} f(x) =$	$\lim_{x\to\infty} f(x) =$	Horizontal asymptote: $y =$	y-intercept:
Vertical asymptote: $x =$	x-intercept:	Hole:	Domain: $x \neq$

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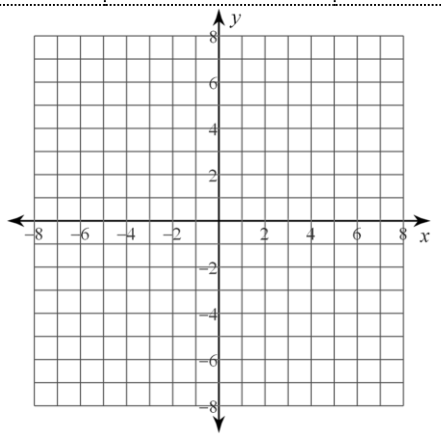
3. $f(x) = \dfrac{x^2-5x+4}{x^2+2x-3}$

$\lim_{x\to-\infty} f(x) =$	$\lim_{x\to\infty} f(x) =$	Horizontal asymptote: $y =$	y-intercept:
Vertical asymptote: $x =$	x-intercept:	Hole:	Domain: $x \neq$

Write the rational function in its factored form. Then analyze the rational function for its long-run behavior (end behavior and horizontal asymptote) and its short-run behavior (intercepts, vertical asymptote, and holes). *Write DNE if the function doesn't have a particular property.* Lastly, sketch its graph.

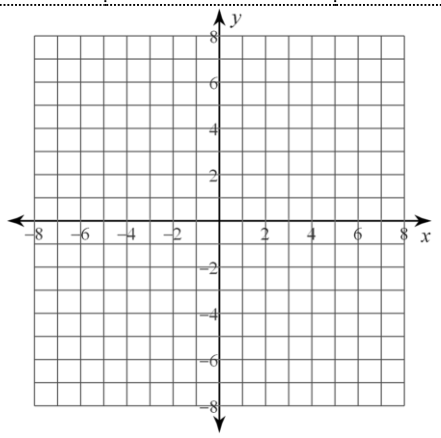
4. $f(x) = \dfrac{-6}{x+3}$

Horizontal asymptote $y =$	y-intercept:	Domain: $x \neq$
Hole:	x-intercept(s):	Vertical asymptote: $x =$



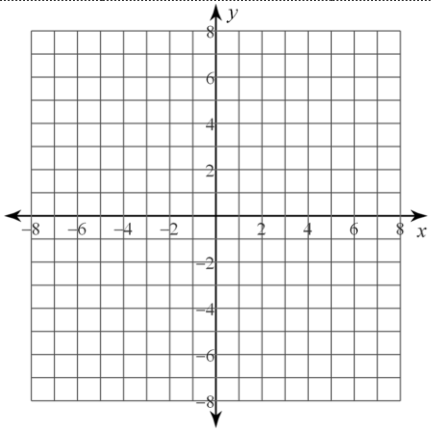
5. $f(x) = \dfrac{-2x+8}{x+2}$

Horizontal asymptote $y =$	y-intercept:	Domain: $x \neq$
Hole:	x-intercept(s):	Vertical asymptote: $x =$



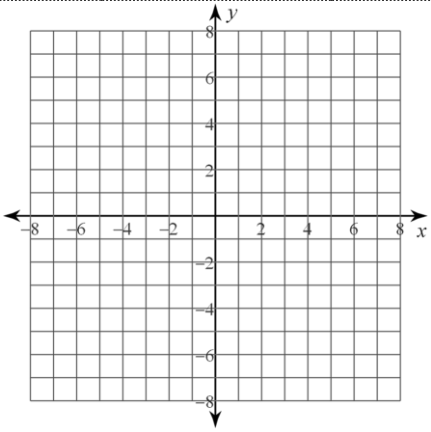
6. $f(x) = \dfrac{-2x^2 + 6x}{x^2 - 4x}$

Horizontal asymptote $y =$	y-intercept:	Domain: $x \neq$
Hole:	x-intercept(s):	Vertical asymptote: $x =$



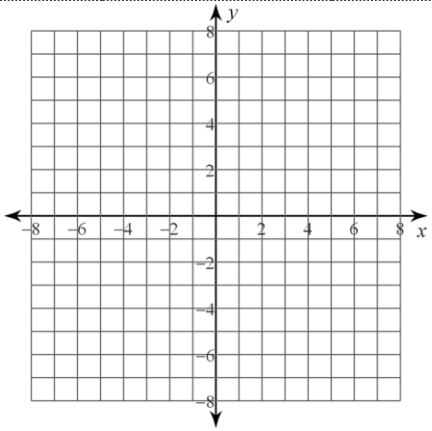
7. $f(x) = \dfrac{3x^2 - 27}{x^2 + x - 6}$

Horizontal asymptote $y =$	y-intercept:	Domain: $x \neq$
Hole:	x-intercept(s):	Vertical asymptote: $x =$



8. $f(x) = \dfrac{-x^2 - x + 6}{x^2 + 2x - 3}$

Horizontal asymptote $y =$	y-intercept:	Domain: $x \neq$
Hole:	x-intercept(s):	Vertical asymptote: $x =$



9. $f(x) = \dfrac{3x^2 + 3x - 36}{x^2 + 2x - 8}$

Horizontal asymptote $y =$	y-intercept:	Domain: $x \neq$
Hole:	x-intercept(s):	Vertical asymptote: $x =$