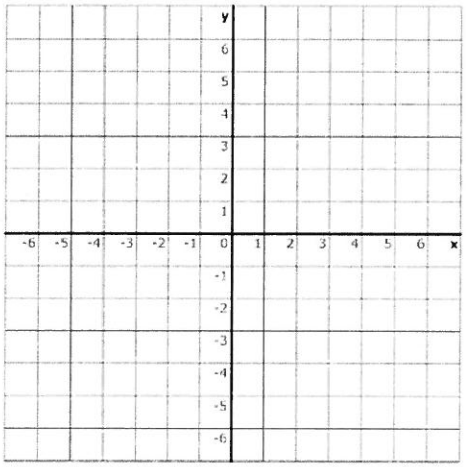
Name: _____ Per: _____ Date: _____

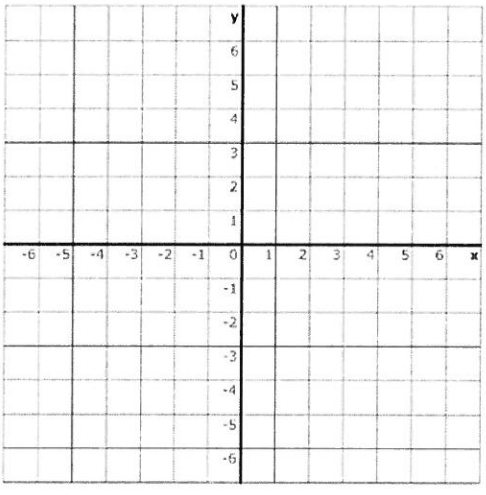
Serafino ▪ Precalculus S2

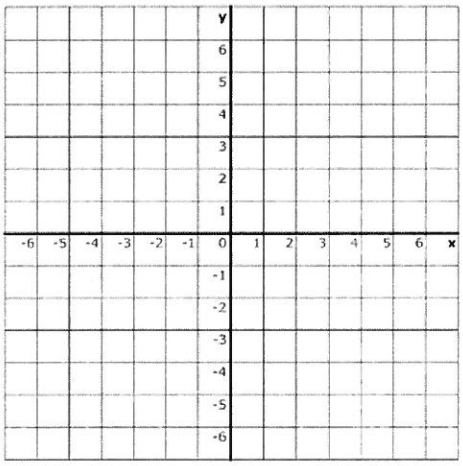
12B2 Rational Functions: Simplifying, Analyzing, Graphing

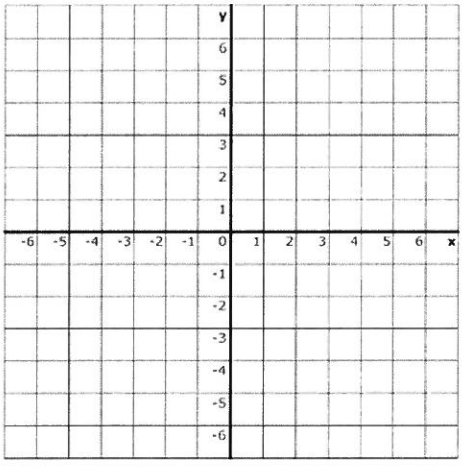
Do all necessary work on a separate paper and fill out the table and graph the function. *There is NOT enough room for work to go here.* You should be able to sketch all the functions with the information provided on the table. Use Desmos.com to check your work until the key is up.

★ Bonus: Look up a) when a rational function has a slant/oblique asymptote b) how to find the equation of it

1. $f(x)=\frac{2x-6}{x^2-3x}$	Factored & Simplified:	
Domain Discontinuities:	RDs (points):	
VA(s):	HA:	
x–int(s):	y–int:	
As $x \to -\infty$,	As $x \to \infty$,	
Oblique (slant) Asymptote:		

2. $f(x)=\frac{x^2+3x}{x^2-x}$	Factored & Simplified:	
Domain Discontinuities:	RDs (points):	
VA(s):	HA:	
x–int(s):	y–int:	
As $x \to -\infty$,	As $x \to \infty$,	
Oblique (slant) Asymptote:		

3. $f(x)=\dfrac{x}{-x-2}$	Factored & Simplified:	
Domain Discontinuities:	RDs (points):	
VA(s):	HA:	
x–int(s):	y–int:	
As $x \to -\infty$,	As $x \to \infty$,	
Oblique (slant) Asymptote:		

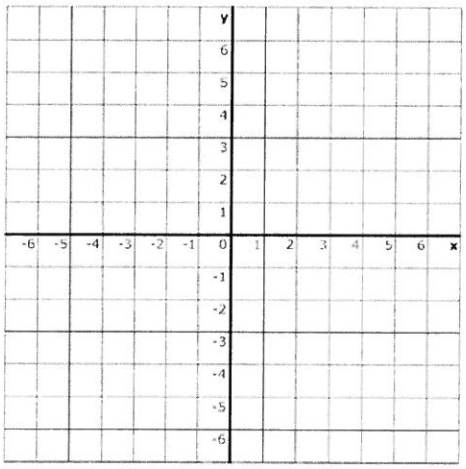
4. $f(x)=\dfrac{-3x^2-12x-9}{x^2+5x+4}$	Factored & Simplified:	
Domain Discontinuities:	RDs (points):	
VA(s):	HA:	
x–int(s):	y–int:	
As $x \to -\infty$,	As $x \to \infty$,	
Oblique (slant) Asymptote:		

5.

$$f(x) = \frac{x^2 + x}{-2x^2 - 2x + 12}$$

Factored & Simplified:

Domain Discontinuities:	RDs (points):
VA(s):	HA:
x–int(s):	y–int:
As $x \to -\infty$,	As $x \to \infty$,
Oblique (slant) Asymptote:	

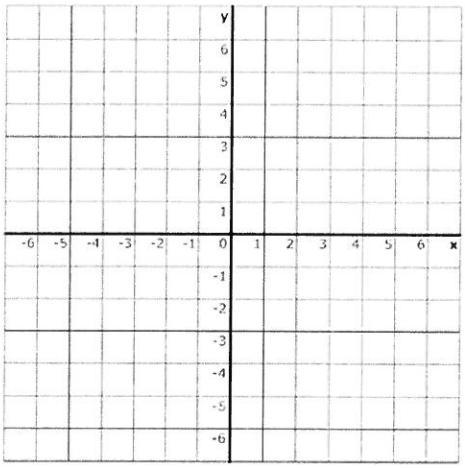


6.

$$f(x) = \frac{x^3 - 6x^2 + 8x}{-3x^2 + 9x - 6}$$

Factored & Simplified:

Domain Discontinuities:	RDs (points):
VA(s):	HA:
x–int(s):	y–int:
As $x \to -\infty$,	As $x \to \infty$,
Oblique (slant) Asymptote:	

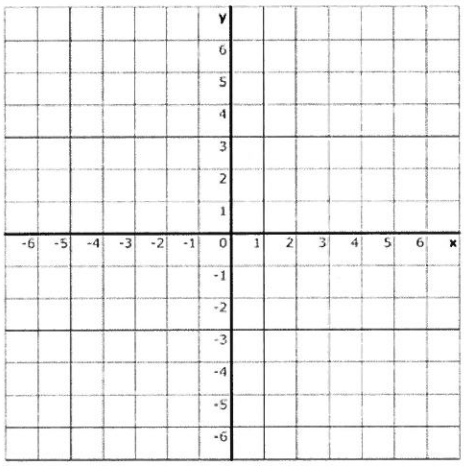


7.

$$f(x) = \frac{x^3 - 16x}{-3x^2 + 3x + 18}$$

Factored & Simplified:

Domain Discontinuities:	RDs (points):
VA(s):	HA:
x–int(s):	y–int:
As $x \to -\infty$,	As $x \to \infty$,
Oblique (slant) Asymptote:	

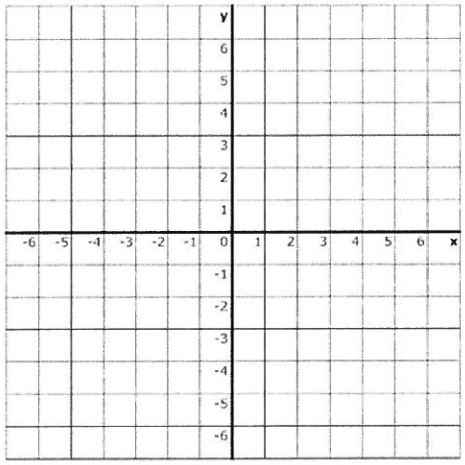


8.

$$f(x) = \frac{x^3 - 2x^2 - 3x}{4x^2 + 8x}$$

Factored & Simplified:

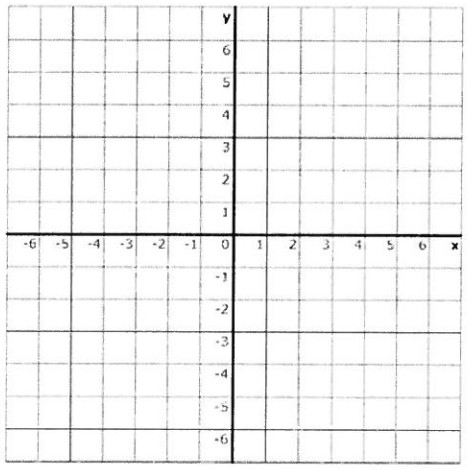
Domain Discontinuities:	RDs (points):
VA(s):	HA:
x–int(s):	y–int:
As $x \to -\infty$,	As $x \to \infty$,
Oblique (slant) Asymptote:	



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

Factored & Simplified:

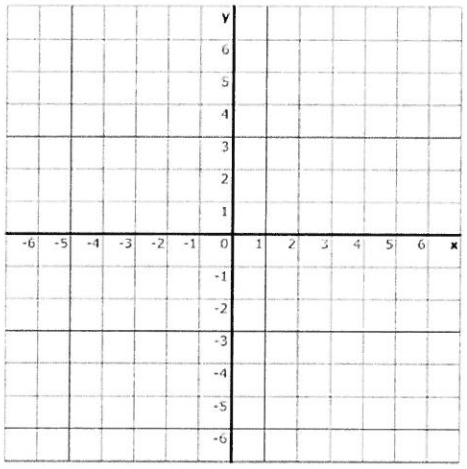
Domain Discontinuities:	RDs (points):
VA(s):	HA:
x–int(s):	y–int:
As $x \to -\infty$,	As $x \to \infty$,
Oblique (slant) Asymptote:	

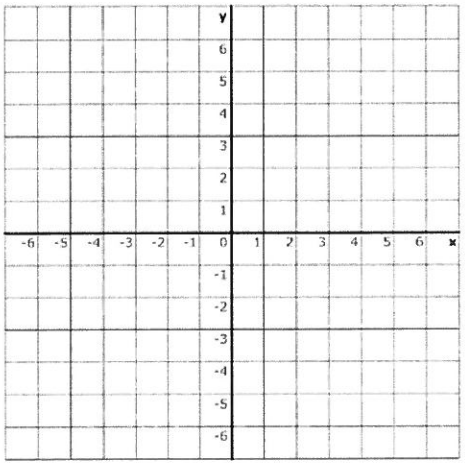


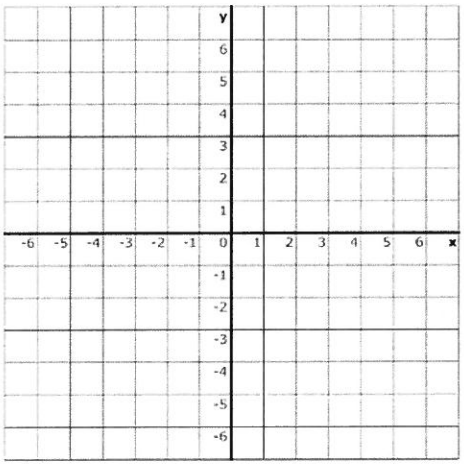
10. $f(x)=\dfrac{-x-1}{x+2}$

Factored & Simplified:

Domain Discontinuities:	RDs (points):
VA(s):	HA:
x–int(s):	y–int:
As $x \to -\infty$,	As $x \to \infty$,
Oblique (slant) Asymptote:	



11. $f(x)=\dfrac{x^3-x}{x^3+2x^2-3x}$	Factored & Simplified:	
Domain Discontinuities:	RDs (points):	
VA(s):	HA:	
x–int(s):	y–int:	
As $x \to -\infty$,	As $x \to \infty$,	
Oblique (slant) Asymptote:		

12. $f(x)=\dfrac{x^2+3x+2}{-3x-12}$	Factored & Simplified:	
Domain Discontinuities:	RDs (points):	
VA(s):	HA:	
x–int(s):	y–int:	
As $x \to -\infty$,	As $x \to \infty$,	
Oblique (slant) Asymptote:		