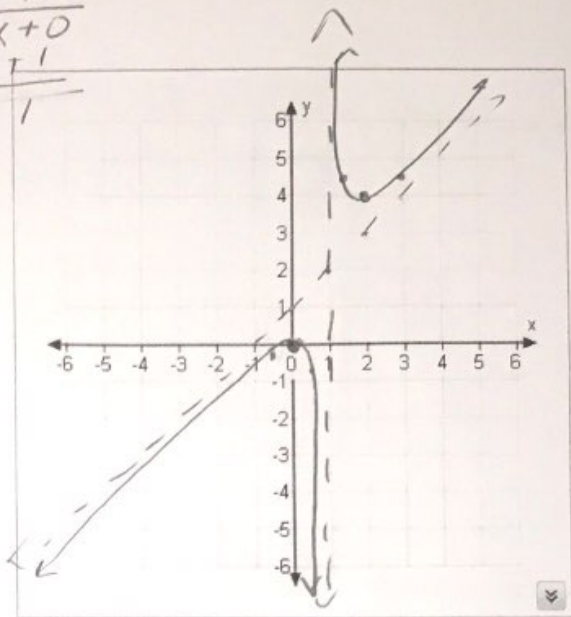


29, 167

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

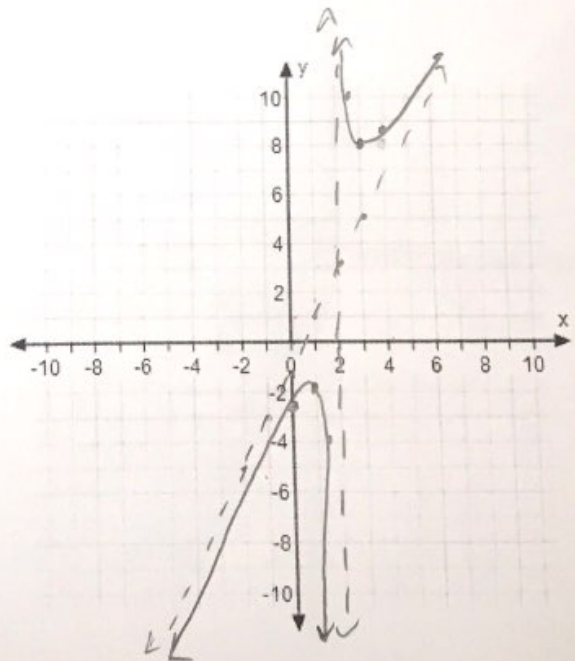
$$\begin{array}{r} x+1 \\ \sqrt{x^2+0x+0} \\ -x^2+x \\ \hline x+0 \\ -x+1 \\ \hline 1 \end{array}$$

Higher Degree N/D?	$N > D$																
Asymptotes:	S.A. $y = x + 1$ V.A. $x = 1$																
hole(s):	none																
Domain:	$x \neq 1$																
Range:	—																
x-int (s):	(0, 0)																
y-int:	(0, 0)																
Test Points:	<table border="1"> <tr> <td><math>x</math></td> <td><math>f(x)</math></td> <td><math>x</math></td> <td><math>f(x)</math></td> </tr> <tr> <td>-1/2</td> <td>-0.167</td> <td>2</td> <td>4</td> </tr> <tr> <td>1/2</td> <td>-0.5</td> <td>3</td> <td>4.5</td> </tr> <tr> <td></td> <td></td> <td>4</td> <td>5.33</td> </tr> </table>	$x$	$f(x)$	$x$	$f(x)$	-1/2	-0.167	2	4	1/2	-0.5	3	4.5			4	5.33
$x$	$f(x)$	$x$	$f(x)$														
-1/2	-0.167	2	4														
1/2	-0.5	3	4.5														
		4	5.33														



11.  $f(x) = \frac{2x^2 - 5x + 5}{x-2}$

Higher Degree N/D?	$N > D$																				
Asymptotes:	SA $y = 2x - 1$ VA $x = 2$																				
hole(s):	none																				
Domain:	$x \neq 2$																				
Range:	—																				
x-int (s):	none																				
y-int:	(0, -5/2)																				
Test Points:	<table border="1"> <tr> <td><math>x</math></td> <td><math>f(x)</math></td> <td><math>x</math></td> <td><math>f(x)</math></td> </tr> <tr> <td>1</td> <td>-2</td> <td>3</td> <td>8</td> </tr> <tr> <td>1.5</td> <td>-4</td> <td>4</td> <td>8.5</td> </tr> <tr> <td></td> <td></td> <td>5</td> <td>10</td> </tr> <tr> <td></td> <td></td> <td>2.5</td> <td>10</td> </tr> </table>	$x$	$f(x)$	$x$	$f(x)$	1	-2	3	8	1.5	-4	4	8.5			5	10			2.5	10
$x$	$f(x)$	$x$	$f(x)$																		
1	-2	3	8																		
1.5	-4	4	8.5																		
		5	10																		
		2.5	10																		

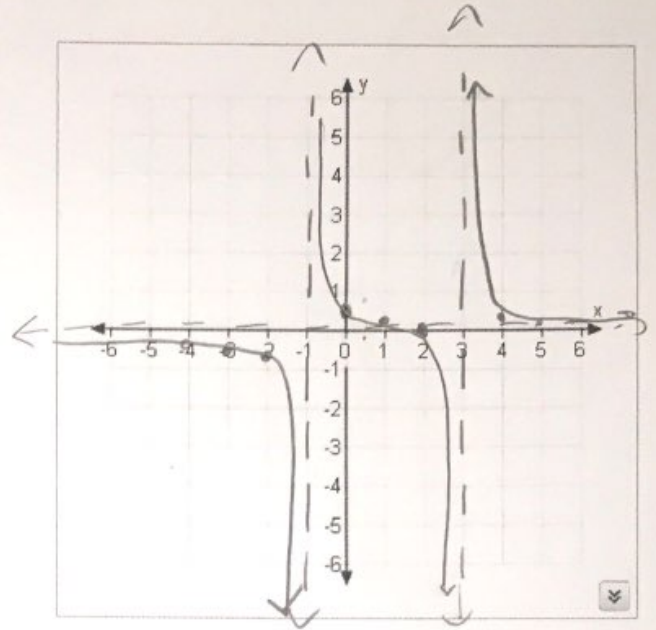


$2x^2 - 5x + 5 = 0$   
 $x = \frac{5 \pm \sqrt{25 - 4(2)(5)}}{4}$  negative!

$$\begin{array}{r} 2x-1 \\ x-2 \sqrt{2x^2-5x+5} \\ -2x^2+4x \\ \hline -x+5 \end{array}$$

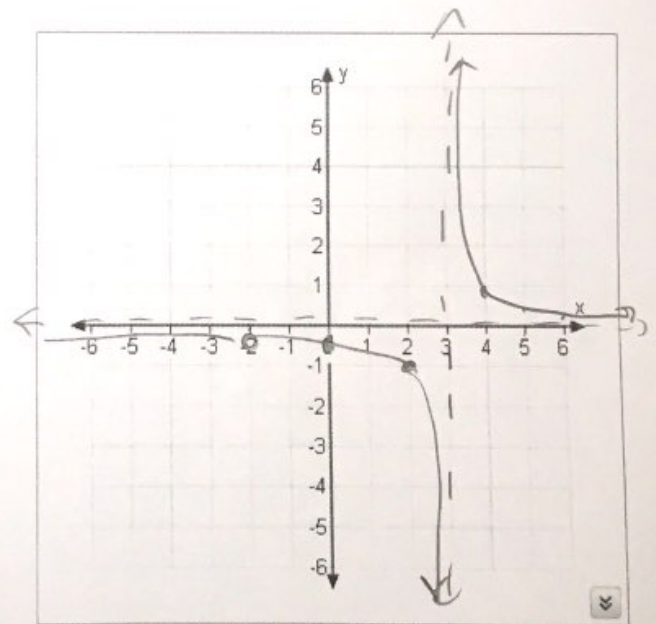
$$8. f(x) = \frac{x-2}{x^2-2x-3} = \frac{(x-2)}{(x-3)(x+1)}$$

Higher Degree N/D?	$N < D$																		
Asymptotes:	HA: $y=0$ VA: $x=3, x=-1$																		
hole(s):	none																		
Domain:	$x \neq 3, x \neq -1$																		
Range:	$y \neq 0 \mathbb{R}$																		
x-int (s):	$(2, 0)$																		
y-int:	$(0, 2/3)$																		
Test Points:	<table style="display: inline-table; vertical-align: middle;"> <tr><td>x</td><td>f(x)</td></tr> <tr><td>1</td><td>0.25</td></tr> <tr><td>-2</td><td>-0.8</td></tr> <tr><td>3</td><td>-0.417</td></tr> <tr><td>-4</td><td>-0.286</td></tr> </table> <table style="display: inline-table; vertical-align: middle; margin-left: 20px;"> <tr><td>x</td><td>f(x)</td></tr> <tr><td>4</td><td>0.4</td></tr> <tr><td>5</td><td>0.25</td></tr> <tr><td>6</td><td>0.190</td></tr> </table>	x	f(x)	1	0.25	-2	-0.8	3	-0.417	-4	-0.286	x	f(x)	4	0.4	5	0.25	6	0.190
x	f(x)																		
1	0.25																		
-2	-0.8																		
3	-0.417																		
-4	-0.286																		
x	f(x)																		
4	0.4																		
5	0.25																		
6	0.190																		



$$9. f(x) = \frac{x+2}{x^2-x-6} = \frac{(x+2)}{(x-3)(x+2)} \text{ hole!}$$

Higher Degree N/D?	$N < D$										
Asymptotes:	HA: $y=0$ VA: $x=3$										
hole(s):	$(-2, -1/5)$										
Domain:	$x \neq 3, -2$										
Range:	$y \neq 0, -1/5$										
x-int (s):	none										
y-int:	$(0, -1/3)$										
Test Points:	<table style="display: inline-table; vertical-align: middle;"> <tr><td>x</td><td>f(x)</td></tr> <tr><td>2</td><td>-1</td></tr> <tr><td>4</td><td>1</td></tr> <tr><td>5</td><td>0.5</td></tr> <tr><td>6</td><td>0.33</td></tr> </table>	x	f(x)	2	-1	4	1	5	0.5	6	0.33
x	f(x)										
2	-1										
4	1										
5	0.5										
6	0.33										

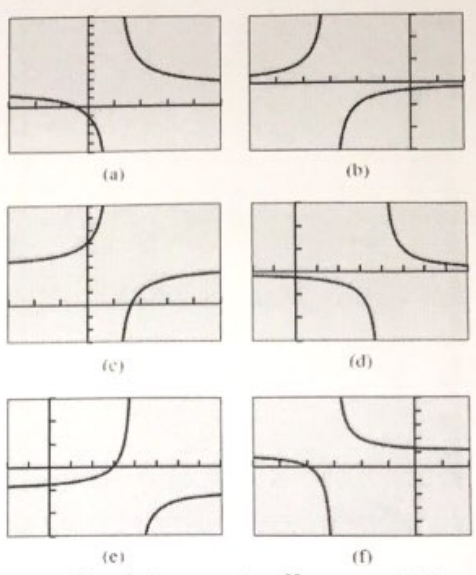


**PreCalculus**  
**WS: 2.6, 2.7**

Name Key  
Date 5/9, 5/10 Block 2A, 1B  
5/11, 5/12

DO NOT USE A GRAPHING CALCULATOR (Except to find your test points and to CHECK your answers)  
Match the rational function with its graph.  
DO NOT USE A GRAPHING CALCULATOR.

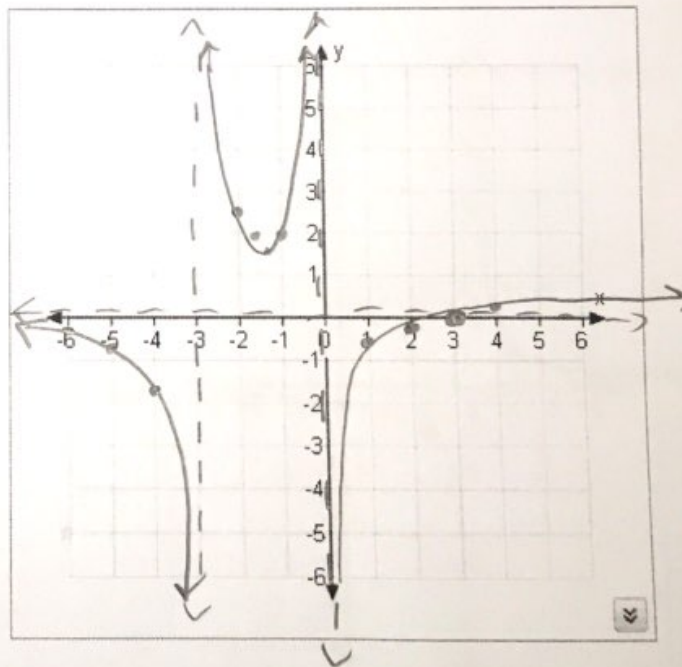
1. D  $f(x) = \frac{1}{x-4}$
2. B  $f(x) = -\frac{1}{x+3}$
3. A  $f(x) = \frac{2x+1}{x-1}$
4. F  $f(x) = \frac{x+4}{x+3}$
5. E  $f(x) = \frac{x-3}{4-x}$
6. C  $f(x) = \frac{3x-5}{x-1}$



Find the following parts of the function: x-intercept, y-intercept, all asymptotes, domain, range, and hole(s), if applicable. Notice in each example if  $N > D$ ,  $N = D$  or  $N < D$ . Then graph the function

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

Higher Degree N/D?	$N < D$																				
Asymptotes:	VA: $x=0, x=-3$ HA: $y=0$																				
hole(s):	none																				
Domain:	$x \neq 0, -3$																				
Range:	$y \neq 0 \mathbb{R}$																				
x-int (s):	$(3, 0)$																				
y-int:	none																				
Test Points:	<table border="1"> <thead> <tr> <th>x</th> <th>f(x)</th> <th>x</th> <th>f(x)</th> </tr> </thead> <tbody> <tr> <td>-6</td> <td>-0.5</td> <td>-2</td> <td>2.5</td> </tr> <tr> <td>-5</td> <td>-0.8</td> <td>-1</td> <td>2</td> </tr> <tr> <td>-4</td> <td>-1.75</td> <td>-1.5</td> <td>2</td> </tr> <tr> <td></td> <td></td> <td>-1.25</td> <td>1.94</td> </tr> </tbody> </table>	x	f(x)	x	f(x)	-6	-0.5	-2	2.5	-5	-0.8	-1	2	-4	-1.75	-1.5	2			-1.25	1.94
x	f(x)	x	f(x)																		
-6	-0.5	-2	2.5																		
-5	-0.8	-1	2																		
-4	-1.75	-1.5	2																		
		-1.25	1.94																		



x	f(x)
1	-0.5
2	-0.1
3	0
4	0.03571