

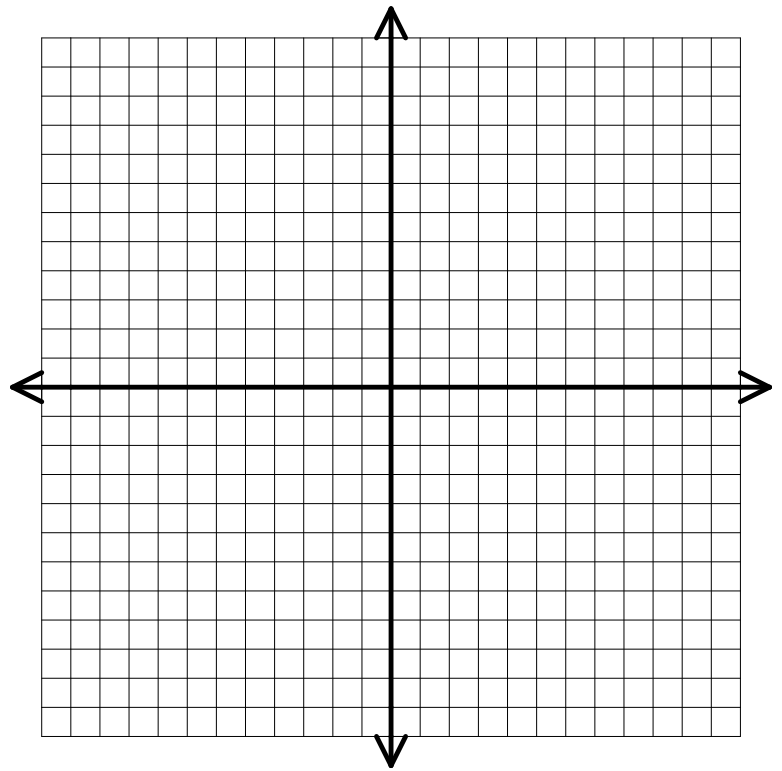
Integrated Math 1 : Module 4 Packet

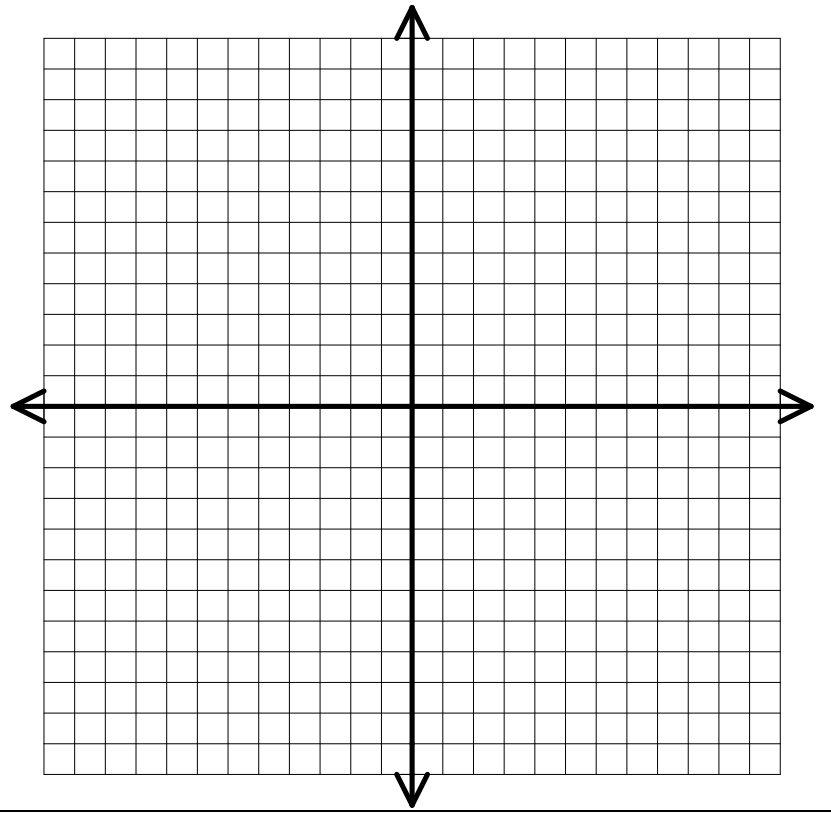
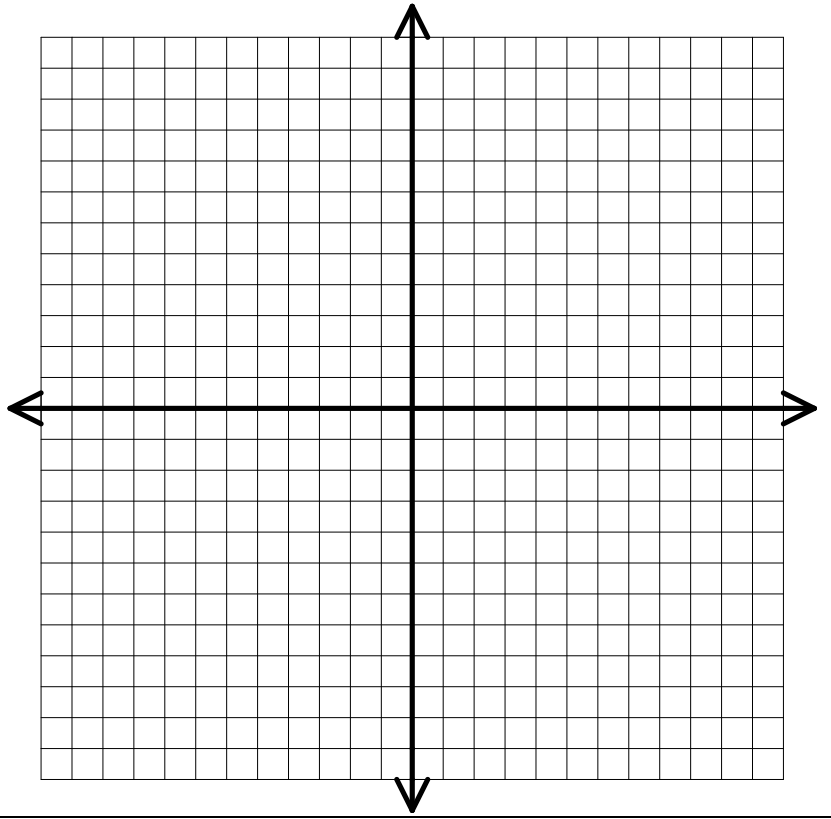
Lesson

Solving Linear Equations with Variables on Both Sides

Scratch Paper for Khan Academy
Solving Linear Equations with Variables on Both Sides

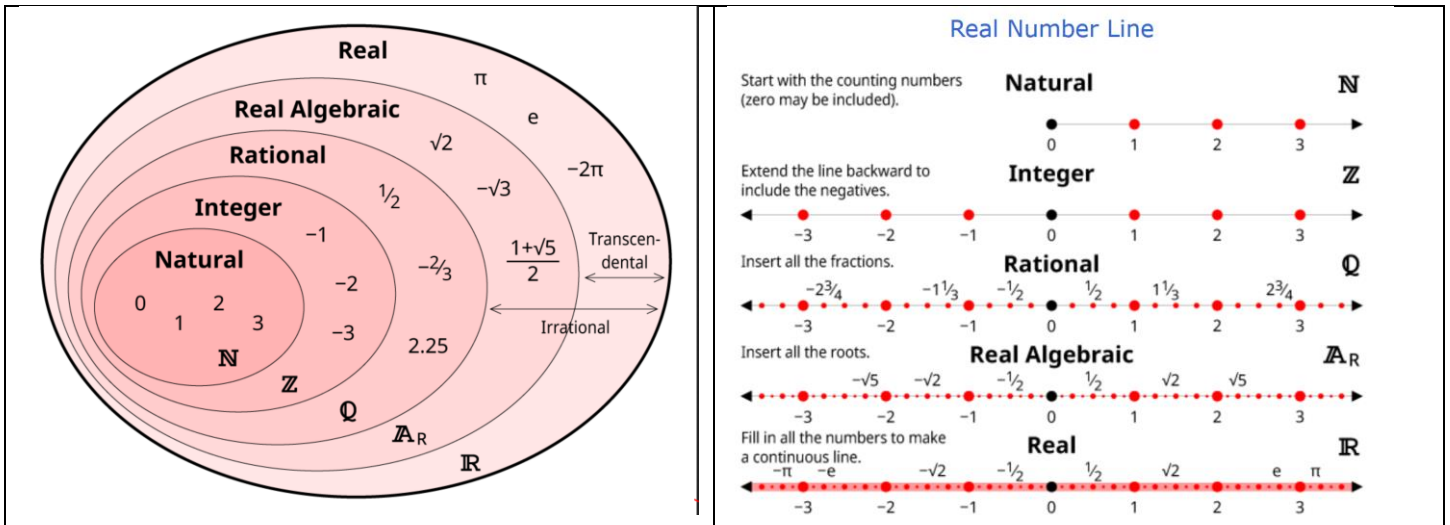
Lesson
Graphing using Slope-Intercept Form





**The natural and integer sets are discrete.
 The rational, irrational; (real-algebraic) and real number sets are continuous.**

**How to describe a set of numbers without using words (inputs or outputs):
 Mathematicians use notation to describe a functions domain. There are two possible methods.**

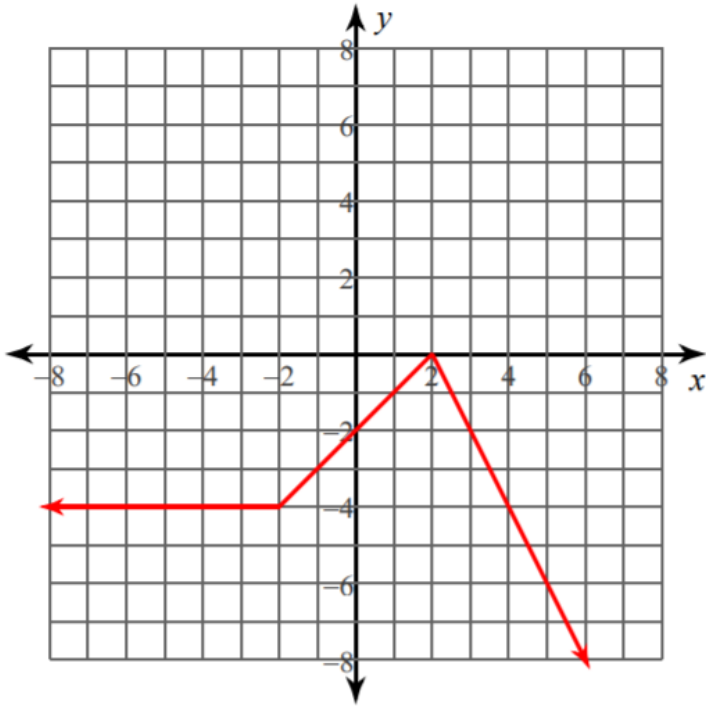


Notation description:	Example:
Set notation: Generally used for \mathbb{N} and \mathbb{Z}	
Bracket notation: Used only for \mathbb{R}	

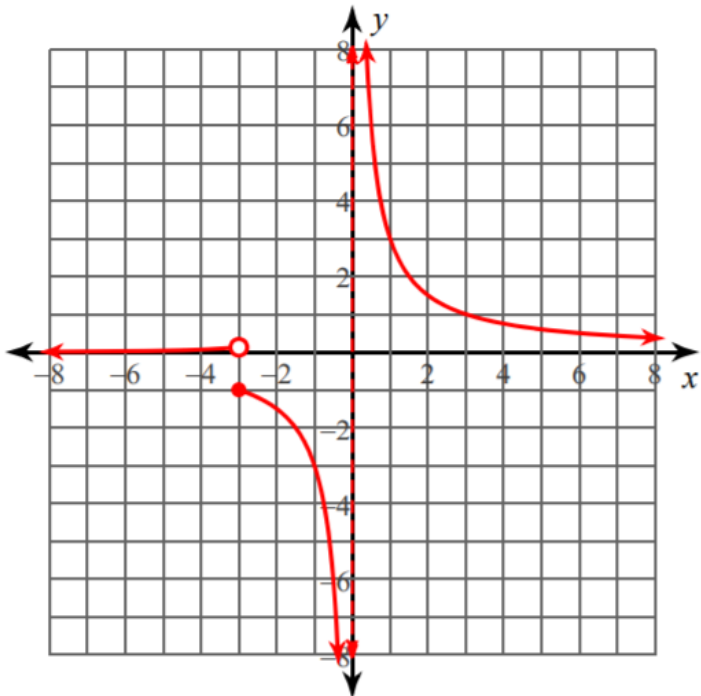
For each of the following, identify:

- a) Domain,
- b) Range,
- c) maximum and minimum values

- d) intervals where the function is increasing,
- e) intervals where the function is decreasing,
- f) intervals where the function is constant,



- a)
- b)
- c)
- d)
- e)
- f)



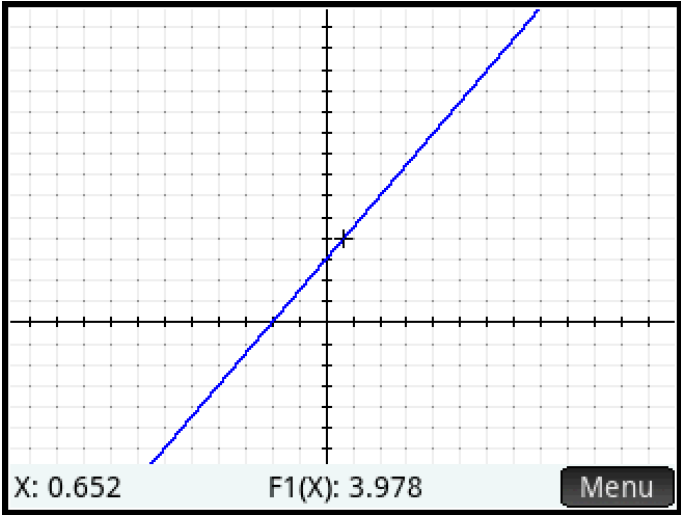
- a)
- b)
- c)
- d)
- e)
- f)

Lesson
Plot 1-variable Inequalities
Solutions to Inequalities

Lesson
Solving 2-Step Inequalities
Solving Multi-Step Inequalities

Khan Academy Scratch Paper
Solving 2-Step Inequalities
Solving Multi-Step Inequalities

Advanced Graph Analysis

Numeric	Algebraic	Graphic																								
<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr style="background-color: #d9e1f2;"> <th>X</th> <th>$f(x)$</th> </tr> </thead> <tbody> <tr><td>-4</td><td>-3</td></tr> <tr><td>-3</td><td>-1.5</td></tr> <tr><td>-2</td><td>0</td></tr> <tr><td>-1</td><td>1.5</td></tr> <tr><td>0</td><td>3</td></tr> <tr><td>1</td><td>4.5</td></tr> <tr><td>2</td><td>6</td></tr> <tr><td>3</td><td>7.5</td></tr> <tr><td>4</td><td>9</td></tr> <tr><td>5</td><td>10.5</td></tr> <tr><td>6</td><td>12</td></tr> </tbody> </table>	X	$f(x)$	-4	-3	-3	-1.5	-2	0	-1	1.5	0	3	1	4.5	2	6	3	7.5	4	9	5	10.5	6	12	$f(x) = \frac{3}{2}x + 3$	
X	$f(x)$																									
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6	12																									

Given the multiple representations of $f(x)$, answer the following questions. Your answers should be the domain values defined using bracket notation. See the example below.

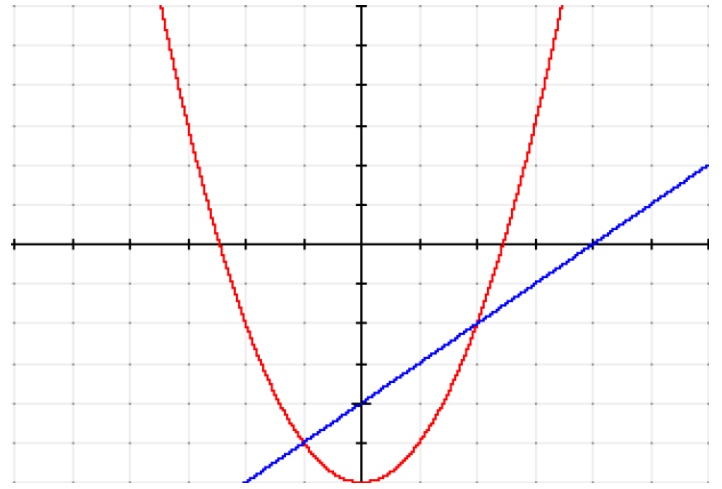
<p>Example: Where is $f(x) > 0$?</p>	<p>Solution: <i>My Thinking you don't need to write this: "I can see in the $f(x)$ column that $f(x) = 0$ when $x = -2$, so x must be greater than -2 for $f(x)$ to be greater than 0... on the graph I can see the line is above the x-axis to the right of -2... I'll use a parenthesis because $>$ means that it does not include the value..."</i></p> <p>Answer: $(-2, \infty)$</p>
1. What is $f(2)$?	Answer:
2. For what values does $f(x) = 0$?	Answer:
3. What is the x -intercept of $f(x)$? <i>Hint: when is $f(x) = 0$?</i>	Answer:
4. What is the domain of $f(x)$?	Answer:
5. On what intervals is $f(x)$ increasing?	Answer:
6. On what interval is $f(x) > 3$?	Answer:
7. On what interval is $f(x) \leq 3$?	Answer:

Numeric	Algebraic	Graphic
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X	$f(x)$	$g(x)$
-4	-8	10
-3	-7	3
-2	-6	-2
-1	-5	-5
0	-4	-6
1	-3	-5
2	-2	-2
3	-1	3
4	0	10

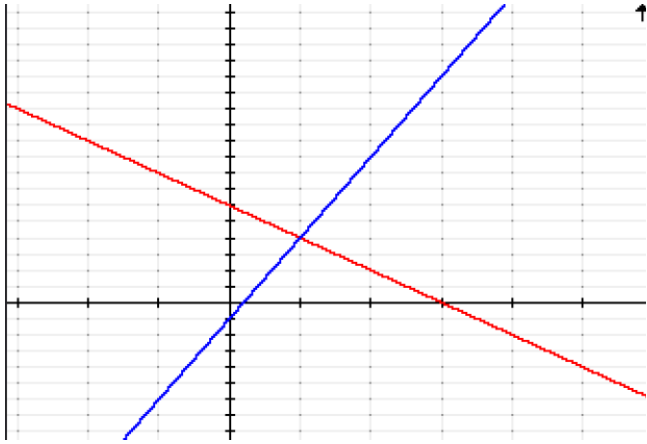
$$f(x) = x - 4$$

$$g(x) = x^2 - 6$$



Given the multiple representations of $f(x)$, answer the following questions. Your answers should be the domain values defined using bracket notation. See the example below.

Example: What is $f(3) - g(2)$?	<i>My thinking: I can see in the table that $f(3) = 4$ and $g(2) = -2$... so $4 - (-2) = 4 + 2 = 6$</i>
8. Name the (x,y) points where $f(x) = g(x)$?	Answer: $f(2) - g(2) = 6$
9. Over what interval is $f(x) > g(x)$?	Answer:
10. What is $f(0) + g(0)$?	Answer:
11. What is $f(-1) + g(-1)$?	Answer:
12. Which value is greater $f(1)$ or $g(2)$?	Answer:

Numeric	Algebraic	Graphic																																				
<table border="1"> <thead> <tr> <th>X</th> <th>F1</th> <th>F2</th> </tr> </thead> <tbody> <tr><td>-4</td><td>-21</td><td>14</td></tr> <tr><td>-3</td><td>-16</td><td>12</td></tr> <tr><td>-2</td><td>-11</td><td>10</td></tr> <tr><td>-1</td><td>-6</td><td>8</td></tr> <tr><td>0</td><td>-1</td><td>6</td></tr> <tr><td>1</td><td>4</td><td>4</td></tr> <tr><td>2</td><td>9</td><td>2</td></tr> <tr><td>3</td><td>14</td><td>0</td></tr> <tr><td>4</td><td>19</td><td>-2</td></tr> <tr><td>5</td><td>24</td><td>-4</td></tr> <tr><td>0</td><td></td><td></td></tr> </tbody> </table>	X	F1	F2	-4	-21	14	-3	-16	12	-2	-11	10	-1	-6	8	0	-1	6	1	4	4	2	9	2	3	14	0	4	19	-2	5	24	-4	0			$F1(x) = 5x - 1$ $F2(x) = -2x + 6$	
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Is $F2$ of x increasing or decreasing?	Answer:																																					
15. For what values of x is $F2(x) > F1(x)$?	Answer:																																					
16. On what interval is $F1(x) > 5$?	Answer:																																					
17. On what interval is $F2(x) \leq 12$?	Answer:																																					

Final Exam Notesheet