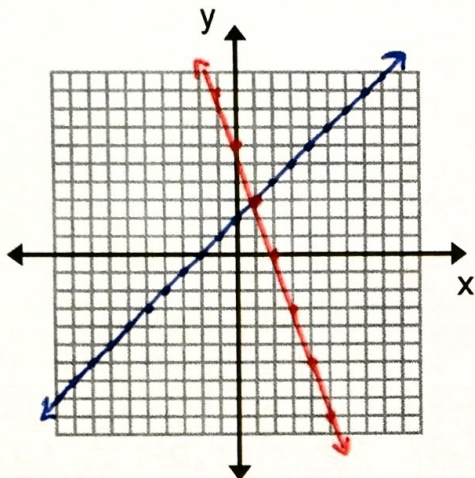


Secondary 1 Honors Chapter 6 Review Sheet Systems of Equations and Inequalities

Solve each system by graphing.

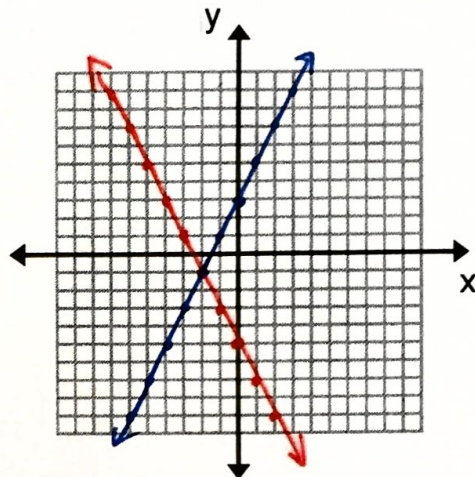
1.
 $y = -3x + 6$
 $y = x + 2$

$(1, 3)$



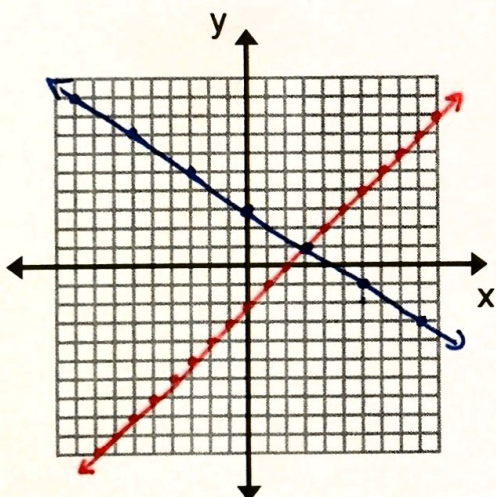
2.
 $y = -2x - 5$
 $y = 2x + 3$

$(-2, -1)$



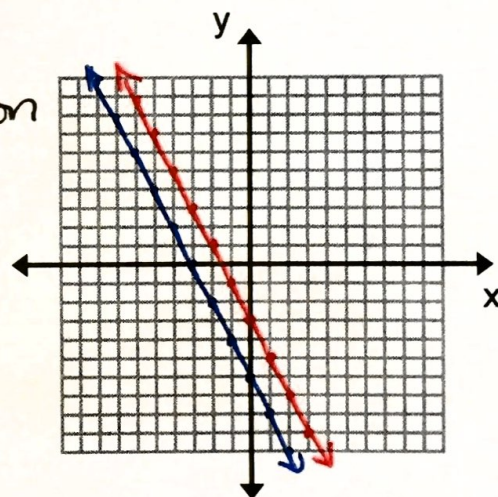
3.
 $x - y = 2$
 $3y + 2x = 9$

$(3, 1)$



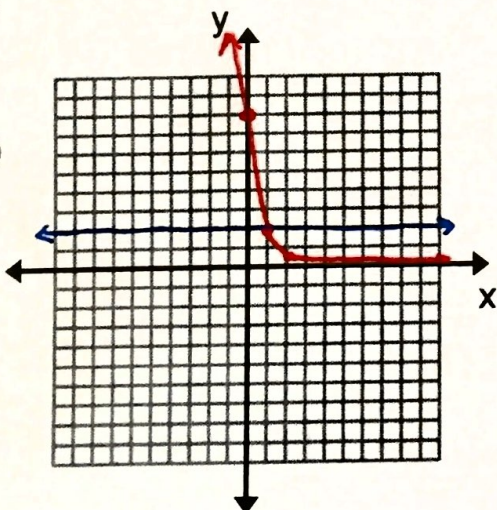
4.
 $y = -2x - 3$
 $6x + 3y = -18$

No Solution



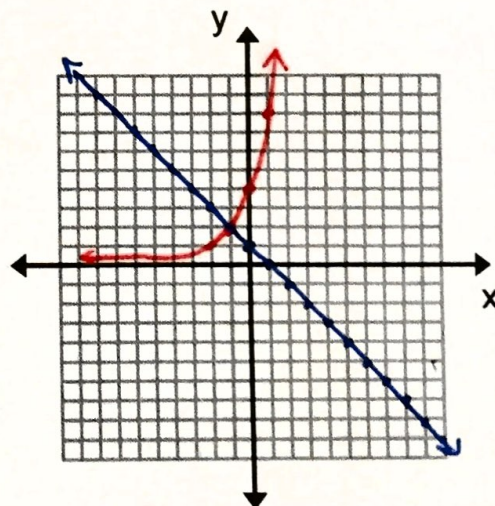
5.
 $y = 8\left(\frac{1}{4}\right)^x$
 $y = 2$

$(1, 2)$



6.
 $y = 4 \cdot 2^x$
 $x + y = 1$

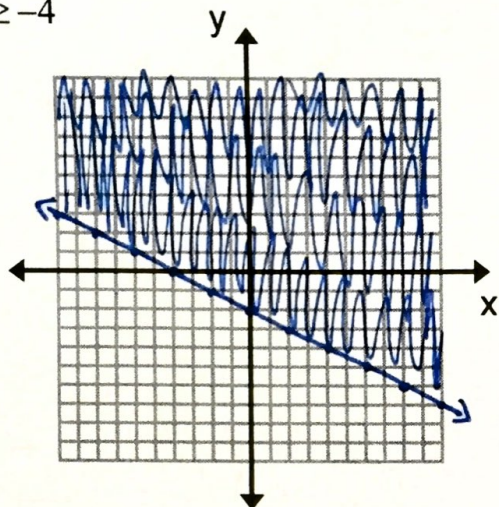
$(-1, 2)$



Graph each inequality.

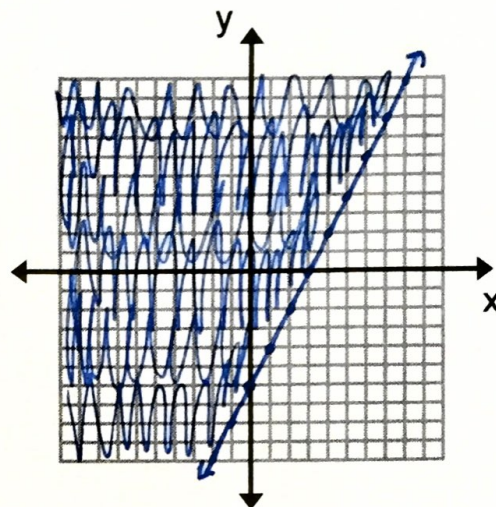
7.

$$x + 2y \geq -4$$



8.

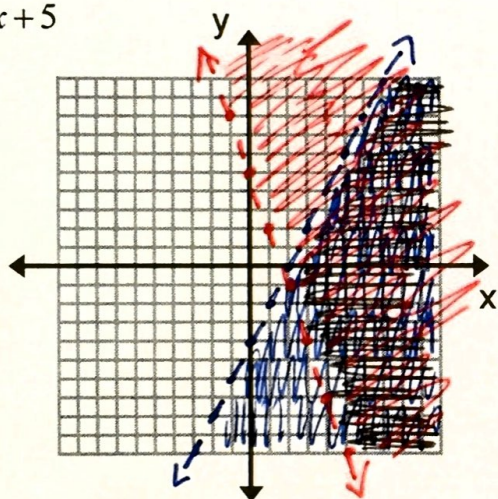
$$2x - y \leq 6$$



9.

$$y < 2x - 4$$

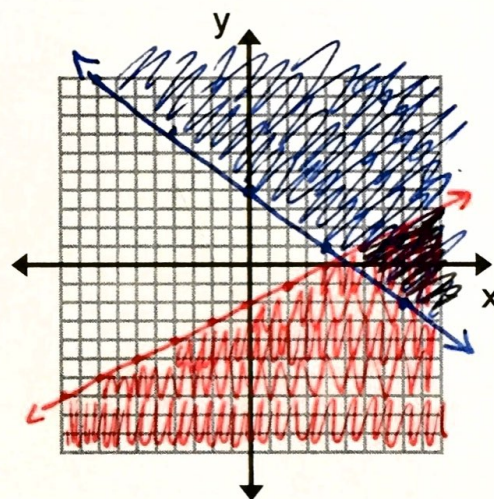
$$y > -3x + 5$$



10.

$$y \leq \frac{1}{2}x - 2$$

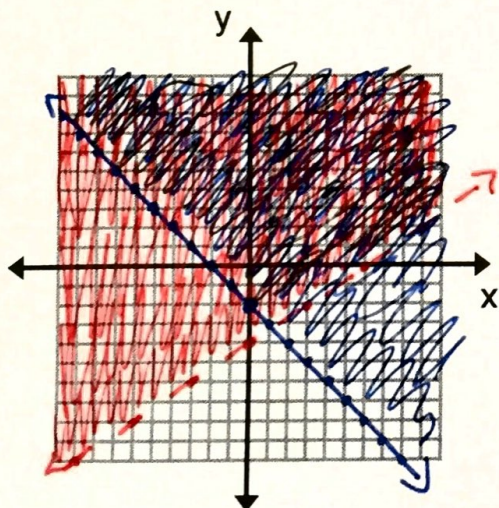
$$y \geq -\frac{3}{4}x + 4$$



11.

$$2x - 3y < 12$$

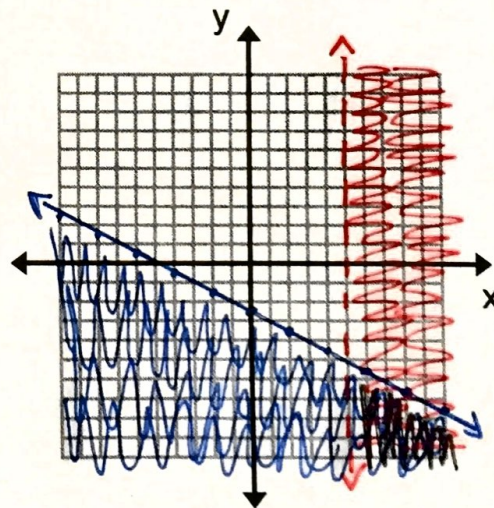
$$x + y \geq -2$$



12.

$$x > 5$$

$$2x + 4y \leq -10$$



Solve each system by substitution or elimination.

13.
 $y = 4x - 6$
 $5x + 3y = -1$

$(1, -2)$

14.
 $5x + 6y = -8$
 $2x + 3y = -5$

$(2, -3)$

15.
 $6x - 2y = 10$
 $3x - 7y = -19$

$(3, 4)$

16.
 $2x + 5y = -1$
 $y = 3x + 10$

$(-3, 1)$

17.
 $y = 2x + 1$
 $3x + y = -9$

$(-2, -3)$

18.
 $x = -2y + 6$
 $3x + 6y = 20$

No Solution

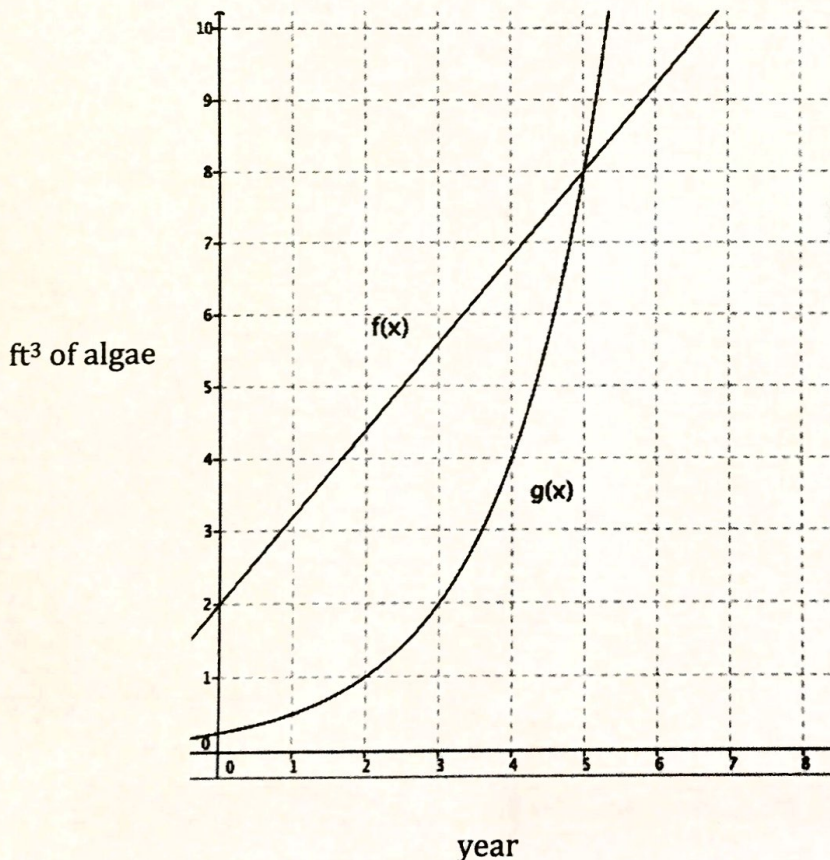
19.
 $4x + 2y = 8$
 $3x + 3y = 9$

$(1, 2)$

20.
 $2x + 3y = 12$
 $-4x - 6y = -24$

∞ Many

The graph below shows the amount of two different types of algae in a pond over several years. The line $f(x)$ shows the amount of blue algae, and the line $g(x)$ shows the amount of red algae.



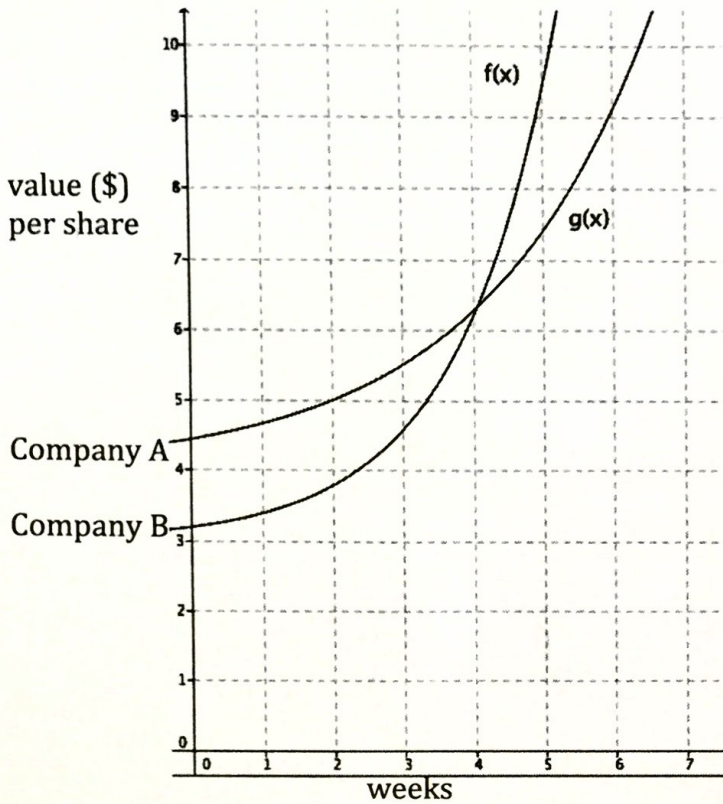
21. What does the point of intersection tell us about the situation?

After 5 years, the amount of both blue and red algae is 8ft^3

22. After 8 years which type of algae will there be more of?

Red

The graph below shows the prices of stock for two different companies.



23. What does the point of intersection tell us about the situation?

After 4 weeks, both stocks have the same dollar value per share (approx \$6.25)

24. Which company would you invest in? Why?

Company B because after 4 weeks the value of each share will be significantly higher than Company A

Complete the boxes and answer the questions regarding each situation. Make sure to label.

25. Jared and Sarah both decided to start a candy store at lunch. Sarah started with \$150 and she earns \$30 each month from her store. Jared starts with \$60 and earns \$38 each month.

What do each of the variables represent?

x: Time (months)

y: Money earned

Equations:

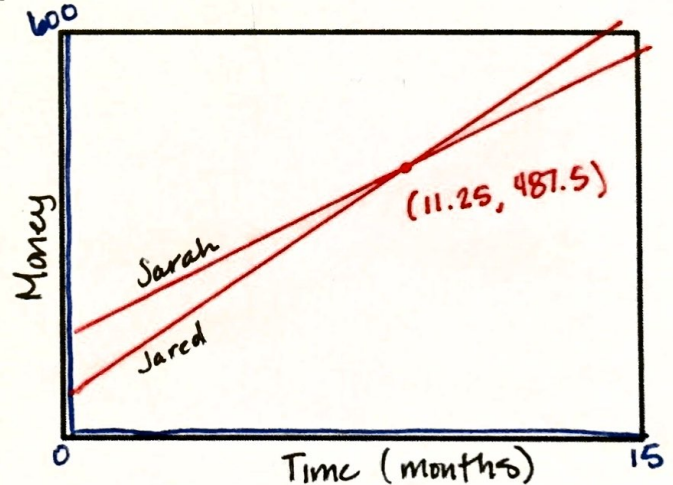
Jared- $y = 38x + 60$

Sarah- $y = 30x + 150$

Table

x: Months	Eq. 1 Jared	Eq. 2 Sarah
0	60	150
1	98	180
2	136	210
3	174	240
4	212	270
5	250	300
6	288	330
7	326	360
8	364	390
9	402	420
10	440	450
11	478	480
12	516	510

Graph-Label lines, axes, intercepts, and intersection point



26. What is the point of intersection? What does the point of intersection represent in the situation?

(11.25, 487.5)

After 11.25 months, Jared and Sarah both earned \$487.50.

27. Who has more money after 9 months?

Sarah

Complete the boxes and answer the questions regarding each situation. Make sure to label.

28. You are assigned to buy a uniform for your new job that consists of a shirt and a pair of pants. If you buy the clothes at Walmart, the shirts cost \$15 and the pants cost \$20 and you have a budget of \$180. If you buy the uniforms at Target, the shirts cost \$14 and the pants cost \$21 but your budget is \$175.

<p>What do each of the variables represent? x: <u>shirt</u></p> <p>y: <u>pants</u></p>	<p>Equations: Walmart- $15x + 20y = 180$ Target- $14x + 21y = 175$</p>												
<p>Table-must go from x- to y-intercepts and include all whole number values</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">Equation 1 <u>WalMart</u> Ordered Pairs</th> <th style="width: 50%;">Equation 2 <u>Target</u> Ordered Pairs</th> </tr> </thead> <tbody> <tr> <td>(0, 9)</td> <td>(0, 8.3)</td> </tr> <tr> <td>(4, 6)</td> <td>(2, 7)</td> </tr> <tr> <td>(8, 3)</td> <td>(5, 5)</td> </tr> <tr> <td>(12, 0)</td> <td>(8, 3)</td> </tr> <tr> <td></td> <td>(11, 1)</td> </tr> </tbody> </table>	Equation 1 <u>WalMart</u> Ordered Pairs	Equation 2 <u>Target</u> Ordered Pairs	(0, 9)	(0, 8.3)	(4, 6)	(2, 7)	(8, 3)	(5, 5)	(12, 0)	(8, 3)		(11, 1)	<p>Graph-Label lines, axes, intercepts, and intersection point</p>
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(12, 0)	(8, 3)												
	(11, 1)												

29. What is the point of intersection? What does the point of intersection represent in the situation?

(8, 3)

If you buy 8 shirts and 3 pairs of pants, you can do it at either store and hit your budget.

30. Jack and Mason each start their own pencil selling stand at school. Jack starts with \$25. Each month he increases his sales by 10%. Mason starts with \$50, and he increases his sales by 4% each month.

<p>What do each of the variables represent? x: <u>Time (months)</u></p> <p>y: <u>Money earned</u></p>	<p>Equations: Jack- $y = 25(1.1)^x$ Mason- $y = 50(1.04)^x$</p>																								
<p>Table- round to the nearest cent</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">x: <u>Months</u></th> <th style="width: 30%;">Eq.1 <u>Jack</u></th> <th style="width: 30%;">Eq.2 <u>Mason</u></th> </tr> </thead> <tbody> <tr> <td>0</td> <td>25</td> <td>50</td> </tr> <tr> <td>.</td> <td>.</td> <td>.</td> </tr> <tr> <td>.</td> <td>.</td> <td>.</td> </tr> <tr> <td>.</td> <td>.</td> <td>.</td> </tr> <tr> <td>.</td> <td>.</td> <td>.</td> </tr> <tr> <td>12</td> <td>78.46</td> <td>80.05</td> </tr> <tr> <td>13</td> <td>86.31</td> <td>83.25</td> </tr> </tbody> </table>	x: <u>Months</u>	Eq.1 <u>Jack</u>	Eq.2 <u>Mason</u>	0	25	50	12	78.46	80.05	13	86.31	83.25	<p>Graph-Label lines, axes, intercepts, and intersection point</p>
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.	.	.																							
.	.	.																							
.	.	.																							
.	.	.																							
12	78.46	80.05																							
13	86.31	83.25																							

31. What is the point of intersection? What does the point of intersection represent in the situation?

(12.36, 81.18)

After 12.36 months, both Mason & Jack will have earned \$81.18.

Complete the boxes and answer the questions regarding each situation. Make sure to label.

32. Kaylee and Tiffany each buy a house. Kaylee bought her house for \$200,000 and each year the value of her house increases by 16%. Tiffany bought her house the same year as Kaylee for \$600,000 and each year the value increases by \$55,000.

<p>What do each of the variables represent? x: Time (years) y: House value (\$)</p>	<p>Equations: Kaylee- $y = 200,000(1.16)^x$ Tiffany- $y = 55,000x + 600,000$</p>									
<p>Table- Fill in the table for ONLY the two x-values where the intersection occurs. Round values to the nearest cent.</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 15%;">x:</th> <th style="width: 35%;">Eq.1</th> <th style="width: 35%;">Eq.2</th> </tr> </thead> <tbody> <tr> <td>12</td> <td>1,187,205.41</td> <td>1,260,000</td> </tr> <tr> <td>13</td> <td>1,377,158.27</td> <td>1,315,000</td> </tr> </tbody> </table>	x:	Eq.1	Eq.2	12	1,187,205.41	1,260,000	13	1,377,158.27	1,315,000	<p>Graph- Label lines, axes, intercepts, and intersection point</p>
x:	Eq.1	Eq.2								
12	1,187,205.41	1,260,000								
13	1,377,158.27	1,315,000								
<p>What is the highest y-value you will need in the window? approximately 1,400,000</p>										

33. What is the point of intersection? What does the point of intersection represent in this situation?

(12.57, 1,291,083.20)

After 12.57 years both Kaylee's and Tiffany's homes have the same value of \$1,291,083.20

Solve by graphing. Draw a sketch of the graph in the best window, including your axes labeled with the Min and Max. Plot the point(s) of intersection on the sketch, round the coordinates to the nearest hundredth if necessary.

34.

$$f(x) = 5x - 30$$

$$g(x) = 7x - 45$$

35.

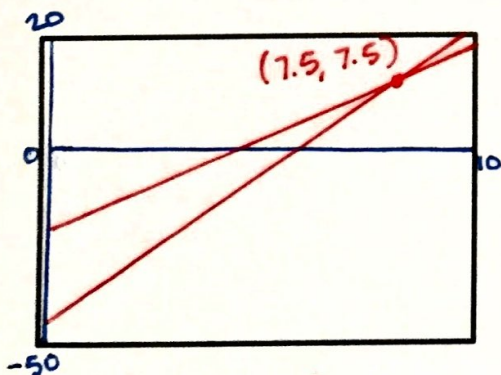
$$f(x) = 2 \cdot \left(\frac{1}{4}\right)^x + 1$$

$$g(x) = 6 \cdot 3^x$$

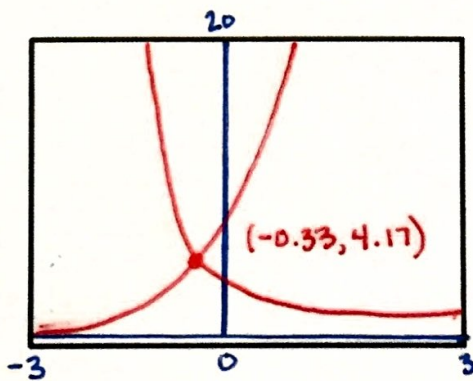
36.

$$f(x) = 2^x + 3$$

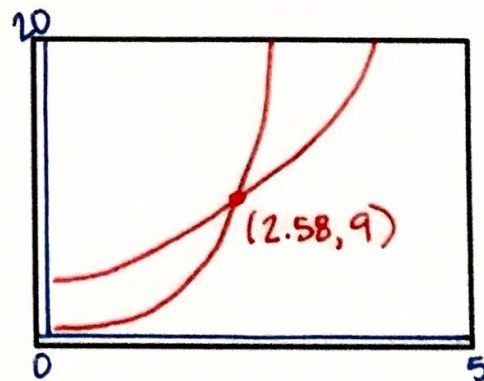
$$g(x) = 4^{x-1}$$



(7.5, 7.5)



(-0.33, 4.17)

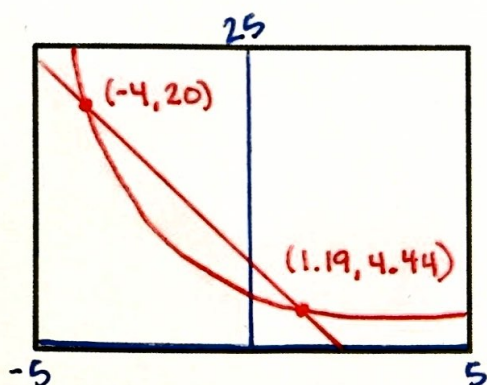


(2.58, 9)

37.

$$f(x) = -3x + 8$$

$$g(x) = \left(\frac{1}{2}\right)^x + 4$$

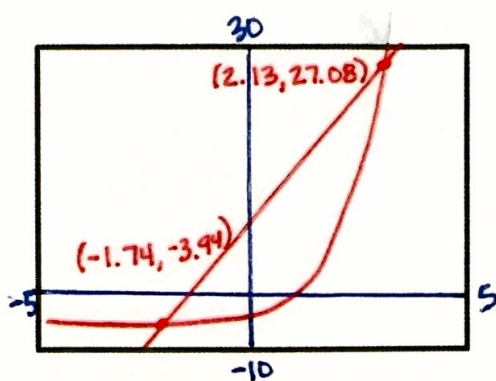


$(-4, 20) \dagger$
 $(1.19, 4.44)$

38.

$$f(x) = 5^x - 4$$

$$g(x) = 8x + 10$$

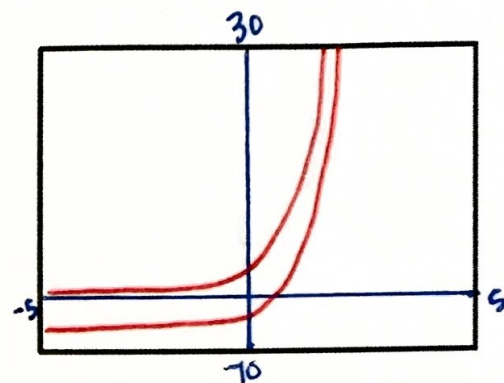


$(-1.74, -3.94) \dagger$
 $(2.13, 27.08)$

39.

$$f(x) = 3^x$$

$$g(x) = 3^x - 5$$



No Solution