Do Now

1) Keith determines the zeros of the function $f(x)$ to be -6 and 5. What could be Keith's function?

(1) $f(x) = (x + 5)(x + 6)$
(2) $f(x) = (x + 5)(x - 6)$
(3) $f(x) = (x - 5)(x + 6)$
(4) $f(x) = (x - 5)(x - 6)$

2) Which system of equations has the same solution as the system below?

$2x + 2y = 16$
$3x - y = 4$

$2x + 2y = 16$
$6x - 2y = 8$

(1) $2x + 2y = 16$
$6x - 2y = 4$

(2) $2x + 2y = 16$
$6x - 2y = 8$

(3) $x + y = 16$
$3x - y = 4$

(4) $6x + 6y = 48$
$6x + 2y = 8$

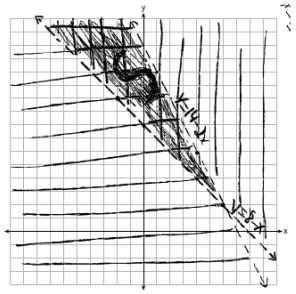
$8x = 24$
$x = 3$

May 30-7:11 PM

33. 48 feet

3 seconds

34.



Kai is incorrect

(6,2) is not in

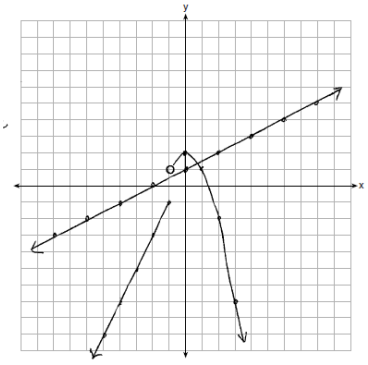
the shaded region

35. 9.5 miles per min

$y = 9.5x$

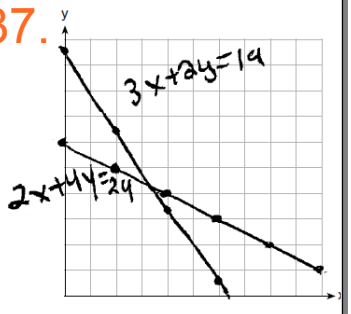
1028 miles

36.



1 value because the functions intersect on the graph one time

37.



$3x + 2y = 19$

$2x + 4y = 24$

(3.5, 4.25)

May 23-9:53 AM

33 The height, H, in feet, of an object dropped from the top of a building after t seconds is given by $H(t) = -16t^2 + 144$.

How many feet did the object fall between one and two seconds after it was dropped?

$t = 1$

$-16(1)^2 + 144$

$-16 + 144$

128

$t = 2$

$-16(2)^2 + 144$

$-64 + 144$

80

$128 - 80 = 48$ feet

Determine, algebraically, how many seconds it will take for the object to reach the ground.

$0 = -16t^2 + 144$

$-144 = -16t^2$

$9 = t^2$

$\pm 3 = t$

3 seconds

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34 The sum of two numbers, x and y, is more than 8. When you double x and add it to y, the sum is less than 14.

Graph the inequalities that represent this scenario on the set of axes below.

$x + y > 8$

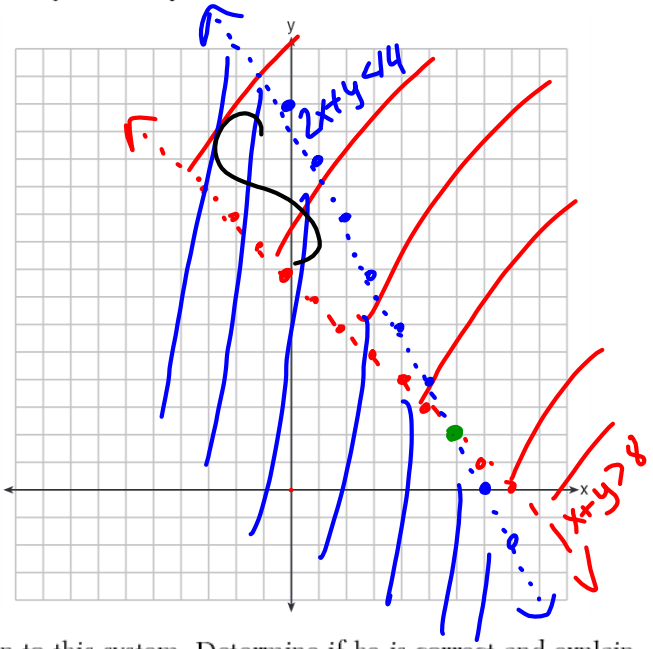
$y > -x + 8$

$0 > -0 + 8$

$0 \not> 8$

$2x + y < 14$

$y < -2x + 14$



Kai says that the point (6,2) is a solution to this system. Determine if he is correct and explain your reasoning.

May 23-9:48 AM

35 An airplane leaves New York City and heads toward Los Angeles. As it climbs, the plane gradually increases its speed until it reaches cruising altitude, at which time it maintains a constant speed for several hours as long as it stays at cruising altitude. After flying for 32 minutes, the plane reaches cruising altitude and has flown 192 miles. After flying for a total of 92 minutes, the plane has flown a total of 762 miles.

Determine the speed of the plane, at cruising altitude, in miles per minute.

$\frac{762-192}{92-32} = \frac{570}{60} = 9.5$ mls/min $\frac{\text{miles}}{\text{minute}}$

Write an equation to represent the number of miles the plane has flown, y, during x minutes at cruising altitude only.

$y = 9.5x$

Assuming that the plane maintains its speed at cruising altitude, determine the total number of miles the plane has flown 2 hours into the flight.

2hrs = 120min

32min = 192 miles

120 − 32 = 88 min @ 9.5 = 836

+192 miles

836 + 192 = 1028 miles

May 23-9:48 AM

36 On the set of axes below, graph

$g(x) = \frac{1}{2}x + 1$ ←

and

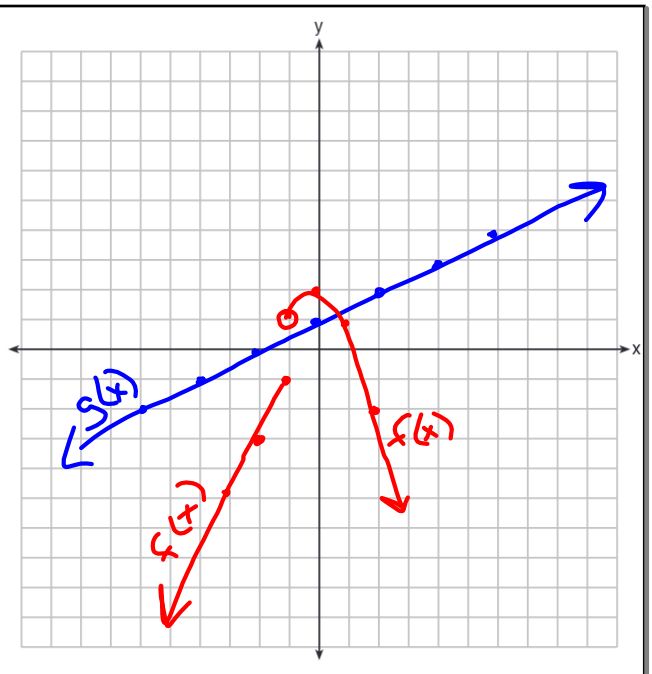
$f(x) = \begin{cases} 2x+1, & x \le -1 \\ 2-x^2, & x > -1 \end{cases}$

$y = 2x+1$

x	y
-1	-1
-2	-3
-3	-5

$y = 2-x^2$

x	y
-1	1
0	2
1	1
2	-2
3	-7



How many values of x satisfy the equation $f(x) = g(x)$? Explain your answer, using evidence from your graphs.

1 time intersecting

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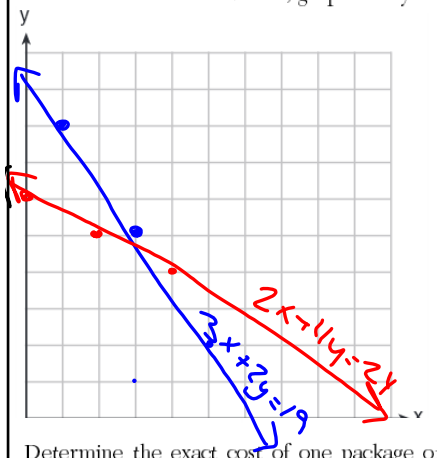
37 Franco and Caryl went to a bakery to buy desserts. Franco bought 3 packages of cupcakes and 2 packages of brownies for \$19. Caryl bought 2 packages of cupcakes and 4 packages of brownies for \$24. Let x equal the price of one package of cupcakes and y equal the price of one package of brownies.

Write a system of equations that describes the given situation.

On the set of axes below, graph the system of equations.



$3x+2y=19$

$2x+4y=24$

$y=-\frac{3}{2}x+\frac{19}{2}$ $y=-\frac{1}{2}x+6$

x	y
1	8
3	5
5	2

Determine the exact cost of one package of cupcakes and the exact cost of one package of brownies in dollars and cents. Justify your solution.

$-2[3x+2y=19]$

$2x+4y=24$

$-6x-4y=-38$

$2x+4y=24$

$-4x=-14$

$x=3.50$

Cupcakes \$3.50

Brownies \$4.25

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