

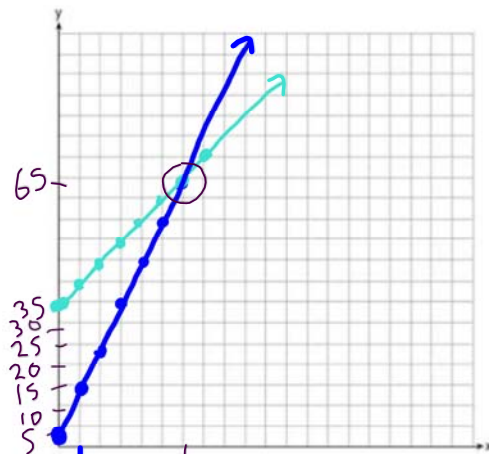
Name: \_\_\_\_\_

Date: \_\_\_\_\_

Regents Review Day 4: Systems

<p>1. Which system of equations has the same solution as the system below?</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <math display="block">2x + 2y = 16</math> <math display="block">3x - y = 4</math> <div style="text-align: center;"> <math>x = 3</math>  <math>y = 5</math> </div> </div> <p>1) <math>2x + 2y = 16</math>  <math>6x - 2y = 4</math></p> <p>2) <math>2x + 2y = 16</math>  <math>6x - 2y = 8</math></p> <p>3) <math>x + y = 16</math>  <math>3x - y = 4</math></p> <p>4) <math>6x + 6y = 48</math>  <math>6x + 2y = 8</math></p> <p><i>Handwritten notes:</i>  <math>6 \times 10 = 16</math>  <math>6x - 2y = 4</math>  <math>18 - 10 = 8</math></p>	<p>2. Alicia purchased <math>H</math> half-gallons of ice cream for \$3.50 each and <math>P</math> packages of ice cream cones for \$2.50 each. She purchased 14 items and spent \$43. Which system of equations could be used to determine how many of each item Alicia purchased?</p> <p>1) <math>3.50H + 2.50P = 43</math>  <math>H + P = 14</math></p> <p>2) <math>3.50P + 2.50H = 43</math>  <math>P + H = 14</math></p> <p>3) <math>3.50H + 2.50P = 14</math>  <math>H + P = 43</math></p> <p>4) <math>3.50P + 2.50H = 14</math>  <math>P + H = 43</math></p> <p><i>Handwritten notes:</i>  <math>3.50H + 2.50P = 43</math>  <math>H + P = 14</math></p>
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3. Central High School had five members on their swim team in 2010. Over the next several years, the team increased by an average of 10 members per year. The same school had 35 members in their chorus in 2010. The chorus saw an increase of 5 members per year. Write a system of equations to model this situation, where  $x$  represents the number of years since 2010. Graph this system of equations on the set of axes below.



Explain in detail what each coordinate of the point of intersection of these equations means in the context of this problem.

4. Jordan works for a landscape company during his summer vacation. He is paid \$12 per hour for mowing lawns and \$14 per hour for planting gardens. He can work a maximum of 40 hours per week, and would like to earn at least \$250 this week. If  $m$  represents the number of hours mowing lawns and  $g$  represents the number of hours planting gardens, which system of inequalities could be used to represent the given conditions?

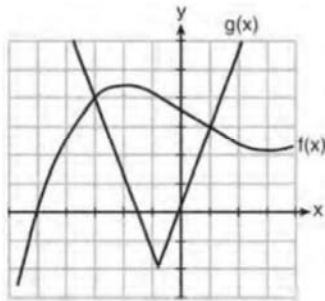
- 1)  $m + g \leq 40$   
 $12m + 14g \geq 250$
- 2)  $m + g \geq 40$   
 $12m + 14g \leq 250$
- 3)  $m + g \leq 40$   
 $12m + 14g \leq 250$
- 4)  $m + g \geq 40$   
 $12m + 14g \geq 250$

<p>5. What is one point that lies in the solution set of the system of inequalities graphed below?</p> <p>Not a Solution</p> <p><math>(-3, 5)</math></p> <p><math>(3, 6)</math></p> <p><math>(9, -7)</math></p> <p>a Solution</p> <p>1) <math>(7, 0)</math></p> <p>2) <math>(3, 0)</math> <del>X</del></p> <p>3) <math>(0, 7)</math></p> <p>4) <math>(-3, 5)</math></p>	<p>6. Let <math>f(x) = -2x^2</math> and <math>g(x) = 2x - 4</math>. On the set of axes below, draw the graphs of <math>y = f(x)</math> and <math>y = g(x)</math>.</p> <p>Using this graph, determine and state all values of <math>x</math> for which <math>f(x) = g(x)</math>.</p>
<p>7. Which value of <math>x</math> results in equal outputs for <math>j(x) = 3x - 2</math> and <math>b(x) =  x + 2 </math>?</p> <p>1) <math>-2</math></p> <p>2) <math>2</math></p> <p>3) <math>\frac{2}{3}</math></p> <p>4) <math>4</math></p>	<p>8. Which point is a solution to the system below?</p> $2y < -12x + 4$ $y < -6x + 4$ <p>1) <math>\left(1, \frac{1}{2}\right)</math></p> <p>2) <math>(0, 6)</math></p> <p>3) <math>\left(-\frac{1}{2}, 5\right)</math></p> <p>4) <math>(-3, 2)</math></p>

Homework/Practice Questions

1.

The graph below shows two functions,  $f(x)$  and  $g(x)$ . State all the values of  $x$  for which  $f(x) = g(x)$ .



2.

The Celluloid Cinema sold 150 tickets to a movie. Some of these were child tickets and the rest were adult tickets. A child ticket cost \$7.75 and an adult ticket cost \$10.25. If the cinema sold \$1470 worth of tickets, which system of equations could be used to determine how many adult tickets,  $a$ , and how many child tickets,  $c$ , were sold?

- 1)  $a + c = 150$   
 $10.25a + 7.75c = 1470$
- 2)  $a + c = 1470$   
 $10.25a + 7.75c = 150$
- 3)  $a + c = 150$   
 $7.75a + 10.25c = 1470$
- 4)  $a + c = 1470$   
 $7.75a + 10.25c = 150$

$7.75c + 10.25a = 1470$   
 $a + c = 150$

3.

Which system of equations does *not* have the same solution as the system below?

$$4x + 3y = 10$$

$$-6x - 5y = -16$$

- 1)  $-12x - 9y = -30$   
 $12x + 10y = 32$
- 2)  $20x + 15y = 50$   
 $-18x - 15y = -48$
- 3)  $24x + 18y = 60$   
 $-24x - 20y = -64$
- 4)  $40x + 30y = 100$   
 $36x + 30y = -96$

4.

Which ordered pair is *not* in the solution set of  $y > -\frac{1}{2}x + 5$  and  $y \leq 3x - 2$ ?

- 1) (5, 3)
- 2) (4, 3)
- 3) (3, 4)
- 4) (4, 4)

