ALGEBRA

Review for

Quiz 5.5 and 6.6

Topics include:

- Graphing Inequalities in Two Variables
- Graphing Systems of Inequalities
5.6 Graphing Inequalities in Two Variables

Determine which ordered pairs are part of the solution set for each inequality.

1. $3x + y \geq 6$, 
   $\{(4, 3), (-2, 4), (-5, -3), (3, -3)\}$

2. $y \geq x + 3$, 
   $\{(6, 3), (-3, 2), (3, -2), (4, 3)\}$

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Match each inequality with its graph.

4. $5y - 2x \leq 10$

5. $3y > 3x + 9$

6. $y - 2x < 3$

7. $x + 2y \geq -6$
Graph each inequality.

8. \( 2y - x < -4 \)

9. \( 2x - 2y \geq 8 \)

Satchi found a used bookstore that sells pre-owned videos and CDs.

Videos cost $9 each, and CDs cost $7 each.

Satchi can spend no more than $35.

12. Write an inequality that represents this situation.

13. Does Satchi have enough money to buy 2 videos and 3 CDs?
6.6 Graphing Systems of Inequalities

Solve each system of inequalities by graphing.

1. \(y > x - 2\)
   \(y \leq x\)

2. \(y \geq x + 2\)
   \(y > 2x + 3\)

Solve each system of inequalities by graphing.

3. \(x + y \geq 1\)
   \(x + 2y > 1\)

4. \(y < 2x - 1\)
   \(y > 2 - x\)
Solve each system of inequalities by graphing.

5. \( y > x - 4 \)  
   \( 2x + y \leq 2 \)

6. \( 2x - y \geq 2 \)  
   \( x - 2y \geq 2 \)

Diego started an exercise program in which each week he works out at the gym between 4.5 and 6 hours and walks between 9 and 12 miles.

7. Make a graph to show the number of hours Diego works out at the gym and the number of miles he walks per week.

8. List three possible combinations of working out and walking that meet Diego's goals.
Answer Key

ALGEBRA

Review for Quiz 5.5 and 6.6

Topics include:
- Graphing Inequalities in Two Variables
- Graphing Systems of Inequalities
5.6 Graphing Inequalities in Two Variables

Determine which ordered pairs are part of the solution set for each inequality.

1. \(3x + y \geq 6,\)
   \([(4, 3), (-2, 4), (-5, -3), (3, -3)]\)

<table>
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<th>x</th>
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<th>(3x + y \geq 6)</th>
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<tbody>
<tr>
<td>4</td>
<td>3</td>
<td>(3(4) + 3 \geq 6)</td>
<td>T</td>
</tr>
<tr>
<td>-2</td>
<td>4</td>
<td>(3(-2) + 4 \geq 6)</td>
<td>F</td>
</tr>
<tr>
<td>5</td>
<td>-3</td>
<td>(3(5) + (-3) \geq 6)</td>
<td>T</td>
</tr>
<tr>
<td>3</td>
<td>-3</td>
<td>(3(3) + (-3) \geq 6)</td>
<td>T</td>
</tr>
</tbody>
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2. \(y \geq x + 3,\)
   \([(6, 3), (-3, 2), (3, -2), (4, 3)]\)

<table>
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<th>y</th>
<th>(y \geq x + 3)</th>
<th>T/F</th>
</tr>
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<tbody>
<tr>
<td>6</td>
<td>3</td>
<td>(3 \geq 6 + 3)</td>
<td>F</td>
</tr>
<tr>
<td>-3</td>
<td>2</td>
<td>(2 \geq -3 + 3)</td>
<td>T</td>
</tr>
<tr>
<td>3</td>
<td>-2</td>
<td>(-2 \geq 3 + 3)</td>
<td>F</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>(3 \geq 4 + 3)</td>
<td>F</td>
</tr>
</tbody>
</table>

Solution:
\(\{(4, 3), (5, -3), (3, -3)\}\)

Solution:
\(\{(3, 2)\}\)

Match each inequality with its graph.

4. \(5y - 2x \leq 10\)  
   \(\frac{5y}{2} \leq x + 2\)

5. \(3y > 3x + 9\)  
   \(y > x + 3\)

6. \(y - 2x < 3\)  
   \(y < 2x + 3\)

7. \(x + 2y \geq -6\)  
   \(2y \geq -x - 6\)  
   \(y \geq -\frac{1}{2}x - 3\)
Graph each inequality.

8. \(2y - x < -4\)  
9. \(2x - 2y \geq 8\)

Satchi found a used bookstore that sells pre-owned videos and CDs.

Videos cost $9 each, and CDs cost $7 each.

Satchi can spend no more than $35.

12. Write an inequality that represents this situation.

\[
9x + 7y \leq 35
\]

13. Does Satchi have enough money to buy 2 videos and 3 CDs?

\[
x = 2 \quad \Rightarrow \quad y = 3
\]

\[
9(2) + 7(3) \leq 35 \quad \text{No, Satchi cannot buy 2 videos & 3 CDs.}
\]

\[
18 + 21 \leq 35 \quad \Rightarrow \quad 39 \leq 35 \quad \leftarrow \text{not true.}
\]
6.6 Graphing Systems of Inequalities

Solve each system of inequalities by graphing.

1. \[y > x - 2\]
   \[y \leq x\]

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Overlap shaded region

Overlap shaded region
Solve each system of inequalities by graphing.

5. \[ y > x - 4 \]
   \[ 2x + y \leq 2 \]

6. \[ 2x - y \geq 2 \]
   \[ x - 2y \geq 2 \]

Diego started an exercise program in which each week he works out at the gym between 4.5 and 6 hours and walks between 9 and 12 miles.

7. Make a graph to show the number of hours Diego works out at the gym and the number of miles he walks per week.

8. List three possible combinations of working out and walking that meet Diego's goals.
   \[ \text{Sample: } (5,10), (5,12), (5.5,10) \]