Curriculum Sample Template

Max. 8 Pages

Grade Level	9th Grade	**Content Area**	Mathematics
Course Title (grades 9-12 Only)	Algebra 1		
Expected Prior Knowledge *The knowledge/skills mastered earlier in the year foundational to the mastery of the required Standard in the current sample.*	Students are expected to have prior knowledge of and/or skills mastered to: A-SSE.1a Evaluate algebraic expressions. A-REL.1 Solve multi-step equations and equations with variables on both sides. A-REI.3 Solve equations for a variable. A-CED.1 Solve an inequality and graph its solution on a number line. A-REI.3 Solve multi-step equations and equations with variables on both sides. F-IF.7a Graph linear functions. A-REI.5 and A.REI.6 Solve systems of linear equations by graphing.		
Alignment to Program of Instruction *Briefly outline methods of instruction found in this sequence of lessons that align to the Program of Instruction described in A.3.*	Mathematics lessons focus on problem solving, critical thinking, and practical mathematical applications. Direct Instruction includes lecture (structured overview, review), small-group (peer partners), and teacher-directed (guided instruction) learning activities. Formative assessments include visual presentation of direct instruction, Cornell Notes and graphic organizers, and collaborative activities. Summative assessments designed for student mastery of content.		
Standard Number and Description *List the Number* and the full description for the Required Standard or Science Performance Objective listed in section A.6.*	A-REI.12 Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.		
Materials/Resources Needed	Pencils, Paper, Spiral Notebook (Math Dictionary), Graph Paper		

* ***Standard Number****: For English Language Arts (Reading and Writing), use Grade, Strand, Standard (e.g., 3.RI.2). For K-8 Math, use Grade, Domain, Standard (e.g., 6.EE.7). For HS Math, use Conceptual Category-Domain, Standard (e.g., A-REI.6). For Science, use Grade, Strand, Concept, PO (e.g., 4.1.3.1).*

Lesson (add as needed)	**Instructional Strategies**	**Student Activities**
1	**Graph & Solve Linear Inequalities in Two Variables** 1. Teacher will review warm-up problems to assess prior knowledge and provide re-teaching assignments as needed. 2. Teacher will introduce key vocabulary: linear inequality, solution of a linear inequality, half-plane 3. Teacher will present structured overview of: (a) the lines (solid and dashed) and solutions (shade above or below line) to graph linear inequalities and (b) the cognitive process for graphing linear inequalities. 4. Teacher will present guided instruction to: (a) determine whether the ordered pair is a solution of the inequality; (b) use the cognitive process for graphing linear inequalities in two variables; and (c) write an inequality to represent a given graph.	1. Students will access prior knowledge by completing warm-up problems for: (a) graphing one-variable inequalities; (b) writing linear equations in slope-intercept form; and (c) graphing linear equations. 2. Students will document key vocabulary and meanings in their Math Dictionary. 3. Students will take Cornell Notes for: (a) the lines (solid and dashed) and solutions (shade above or shade below line) to graph linear inequalities and (b) the cognitive process for graphing linear inequalities. 4. Students will work with peer partner to solve problems for each concept, after it is presented in guided instruction. (see Instructional Strategies 4a-c) 5. Students will complete four-six practice problems for each concept presented in the lesson. (see Instructional Strategies 4a-c)
2	**Graph & Solve Linear Inequalities in Two Variables** 1. Teacher will review guided instruction for graphing and solving linear inequalities in two variables. **Graph & Solve Systems of Linear Inequalities In Two Variables** 1. Teacher will review warm-up problems to assess prior knowledge and provide re-teaching assignments as needed. 2. Teacher will introduce key vocabulary: system of linear inequalities, solutions of a system of linear inequalities, half-plane 3. Teacher will present structured overview of (a) the graph of the solution to a system of inequalities.	1. **Summative Assessment:** Students will complete Solving Linear Inequalities Quiz. 2. **Summative Assessment:** Students will complete Solving Linear Inequalities Mathematical Applications. 1. Students will access prior knowledge by completing warm-up problems for: (a) solving an inequality for y; and (b) graphing the solution of an inequality. 2. Students will document key vocabulary and meanings in their Math Dictionary. 3. Students will take Cornell Notes for (a) the graph of the solution to a system of inequalities.

3	**Graph & Solve Systems of Linear Inequalities in Two Variables** 1. Teacher will present guided instruction to: (a) determine whether the ordered pair is a solution of the given system; (b) graph the system of linear in-equalities and give two ordered pairs that are solutions and two that are not solutions; and (c) graph a system of linear inequalities and describe the solutions.	1. Students will work with peer partner to solve problems for each concept, after it is presented in guided instruction. (see Instructional Strategies 1a-c) 2. Students will complete four-six practice problems for each concept presented in the lesson. (see Instructional Strategies 1a-c)
4	**Graph & solve systems of linear inequalities in two variables** 1. Teacher will review guided instruction for graphing and solving systems of linear inequalities.	1. **Summative Assessment:** Students will complete Solving Systems of Linear Inequalities Quiz. 2. **Summative Assessment:** Students will complete Solving Systems of Linear Inequalities Mathematical Applications.

Summative Assessment Items: *Attach here.* For each summative assessment item, include an answer key or scoring rubric describing how points are to be awarded.

1. **Solving Linear Inequalities Quiz:** Assessment is scored on a 45 point scale, each question is worth 5 points and partial credit may be given. Students will score 36 out of 45 points (80%) to demonstrate mastery.
2. **Solving Linear Inequalities Mathematical Applications:** Assessment is scored on a 25 point scale, each question is worth 5 points and partial credit may be given for free-response questions. Students will score 20 out of 25 points (80%) to demonstrate mastery.*
3. **Solving Systems of Linear Inequalities Quiz:** Assessment is scored on a 60 point scale, each question is worth 5 points and partial credit may be given. Students will score 48 out of 60 points (80%) to demonstrate mastery.
4. **Solving Systems of Linear Inequalities Mathematical Applications:** Assessment is scored on a 25 point scale, each question is worth 5 points and partial credit may be given. Students will score 20 out of 25 points (80%) to demonstrate mastery.*

*assessment independent from instruction

For each summative assessment item, partial credit will be awarded as follows:

5 points for correct answer and writing of ALL mathematical calculations required to solve item.
4 points for correct answer and writing of SOME but not ALL mathematical calculations required to solve item.
3 points for correct answer and no writing of mathematical calculations required to solve item.
2 points for incorrect answer and writing of ALL mathematical calculations required to solve item.
1 point for incorrect answer and writing of SOME but not ALL mathematical calculations required to solve item.
0 points for incorrect answer and no writing of mathematical calculations required to solve item.

Solving Linear Inequalities Quiz

Score: _____

Tell whether the ordered pair is a solution of the given inequality.

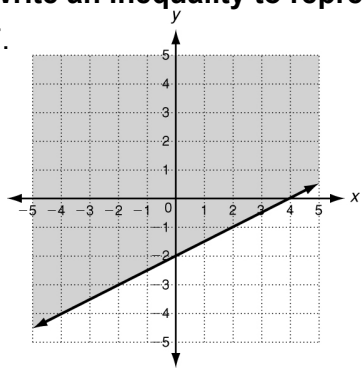
1. (1, 6); $y < x + 6$ _____
2. (–3, –12); $y \geq 2x - 5$ _____
3. (5, –3); $y \leq -x + 2$ _____

Graph the solutions of each linear inequality.

4. $y \leq x + 4$
5. $2x + y > -2$
6. $x + y - 1 < 0$

Write an inequality to represent each graph.

7.



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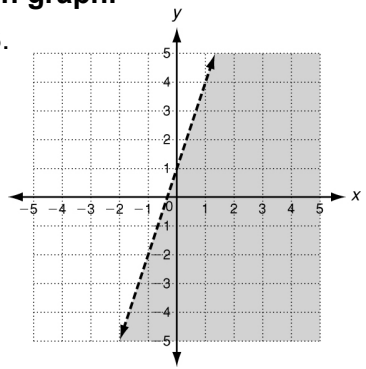

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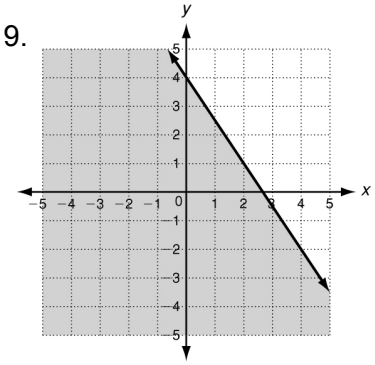

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Solving Linear Inequalities Mathematical Applications

Score: _____

1. The inequality $x + y \leq 8$ describes the amounts of two juices Annette combines to make a smoothie. Which is a solution to the inequality?

   A) (3, 6) B) (6, 1) C) (7, 2) D) (0, 10)

2. The royalties for the high school play are $250. Tickets to the play cost $5 for students and $8 for nonstudents. What linear inequality describes the number of student and nonstudent tickets that need to be sold so that the drama class can pay the royalties?

   A) $5x + 8y \geq 250$ B) $5x + 8y > 250$ C) $5xy + 8 < 250$ D) $5xy + 8 \geq 250$

3. Ada has at most 285 beads to make jewelry. A necklace requires 40 beads, and a bracelet requires 15 beads.
   a. Write a linear inequality to describe the situation.
   b. Graph the solutions.
   c. Give two combinations of necklaces and bracelets that Ada could make.

Solving Systems of Linear Inequalities Quiz

Score: _____

Tell whether the ordered pair is a solution of the given system.

1. $(2, -2); \begin{cases} y < x - 3 \\ y > -x + 1 \end{cases}$

   _____

2. $(2, 5); \begin{cases} y > 2x \\ y \geq x + 2 \end{cases}$

   _____

3. $(1, 3); \begin{cases} y \leq x + 2 \\ y > 4x - 1 \end{cases}$

   _____

Graph the system of linear inequalities.

4. $\begin{cases} y \leq x + 4 \\ y \geq -2x \end{cases}$

5. $\begin{cases} y \leq \frac{1}{2}x + 1 \\ x + y < 3 \end{cases}$

6. $\begin{cases} y > x - 4 \\ y < x + 2 \end{cases}$

a) Give two ordered pairs that are solutions. b) Give two ordered pairs that are not solutions.

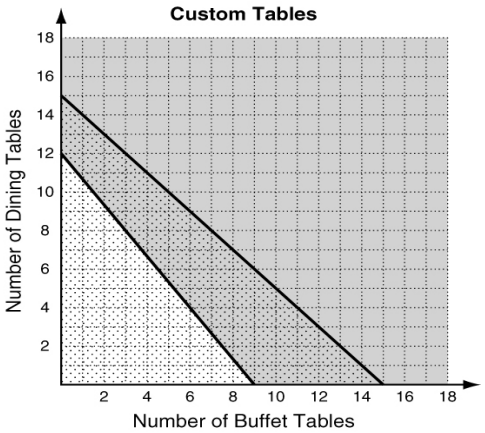
4a _____ 5a _____ 6a_____

4b _____ 5b _____ 6b_____

Solving Linear Inequalities Mathematical Applications

Score: _____

The graph shows the numbers of two types of custom wood tables that can be made to fit a client's needs. Circle the letter that represents the best answer.



1. Which system of linear inequalities represents the graph?

   A) $\begin{cases} x + y \le 15 \\ y \ge 12 - \frac{4}{3}x \end{cases}$

   B) $\begin{cases} y \le x + 15 \\ y \ge 12 - \frac{4}{3}x \end{cases}$

   C) $\begin{cases} x + y \ge 15 \\ y \ge \frac{4}{3}x - 12 \end{cases}$

   D) $\begin{cases} y \le 15 - x \\ y \le \frac{4}{3}x - 12 \end{cases}$

2. If 6 buffet tables are built, which can NOT be the number of dining tables built?

   A) 4 B) 6 C) 8 D) 10

3. Paul earns $7 per hour at the bagel shop and $12 per hour mowing lawns. Paul needs to earn at least $120 per week, but he must work less than 30 hours per week.

   a. Write a system of inequalities to describe the situation.

   b. Graph the system of solutions.

   c. Give two combinations of hours that Ed could work.

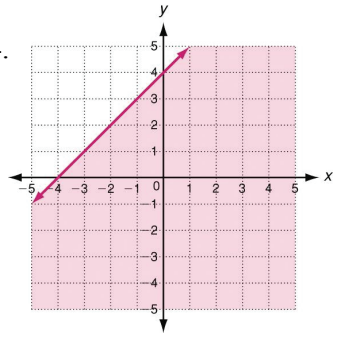
Solving Linear Inequalities Quiz Answer Key

1. Yes

2. No

3. Yes

4.



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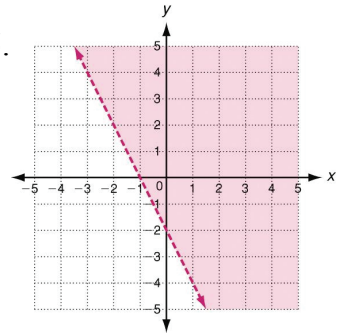

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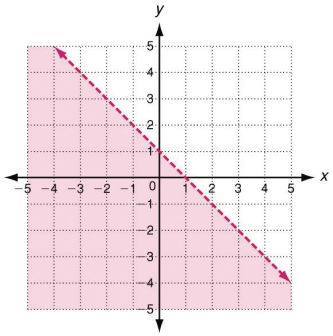


7. $y \geq \frac{1}{2}x - 2$

8. $y < 3x + 1$

9. $y \leq -\frac{3}{2}x + 4$

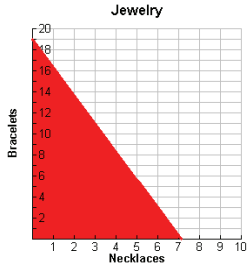
Solving Linear Inequalities Mathematical Applications Answer Key

1. B

2. A

3a. $40x + 15y \leq 285$

3b.



3c. Possible Answers:
(2 necklaces, 8 bracelets)
(5 necklaces, 3 bracelets)

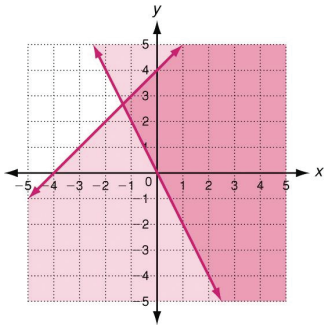
Solving Systems of Linear Inequalities Quiz Answer Key

1. No

2. Yes

3. No

4.



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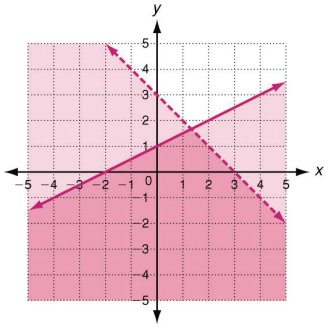

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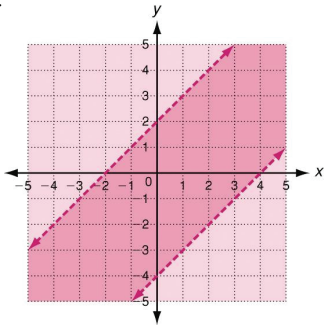


4a. (0, 3) and (3, –2)

4b. (–2, 0) and (–4, 3)

5a. (0, 0) and (–2, 0)

5b. (3, 0) and (2, 3)

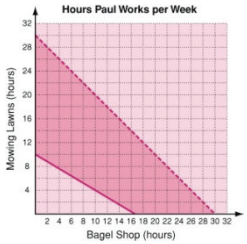
6a. (0, 0) and (–2, –2)

6b. (–3, 3) and (4, 0)

Solving Systems of Linear Inequalities Mathematical Applications Answer Key

1. A
2. D
3a. $\begin{cases} 7x + 12y \geq 120 \\ x + y < 30 \end{cases}$

3b.



3c. Possible Answers:
(2h shop, 12h mowing)
(18h shop, 10h mowing)