Lesson 7.5: Quadratic Inequalities in Two Variables



Explore Your Understanding Assignment

This assignment includes multiple choice and short answer questions. For multiple choice questions, select the best answer. Each is worth 1 mark. Marks assigned to short answer questions are indicated for each question. Be sure to show all necessary work.

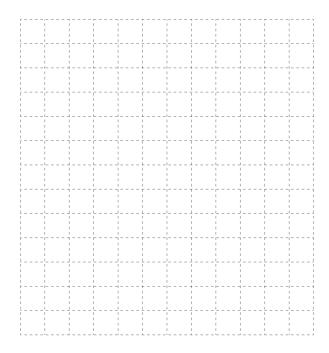


- 1. The solution set of the inequality $y \ge \frac{1}{3}(x-4)^2 + 1$ includes the points
 - A. (-1, 1), (4, 0), and (7, -1)
 - B. (1, 3), (4, 1), and (8, 2)
 - C. (4, 2), (7, 4), and (8, 8)
 - D. (-4, 2), (0, 9), and (9, 1)



- 2. The points (3, 8) and (6, 8) are part of the solution set of a quadratic inequality, while (5, 9) and (7, 7) are not. The point that must also be part of the solution set is
 - A. (4, 7)
 - B. (4, 9)
 - C. (8, 6)
 - D. (6, 10)

- (1)____
- 3. The wording that implies a strict inequality is
 - A. The diameter can be a maximum of...
 - B. Acceptable values cannot exceed...
 - C. The profit was at least...
 - D. The ball was below...
- 1____
- 4. Consider the inequality $y > a(x h)^2$, where a, h > 0. No new solutions will be added to the solution set when
 - A. *a* is increased
 - B. *a* is decreased
 - C. *h* is increased
 - D. *h* is decreased
- (2)
- 5. Graph the inequality $y \ge 2(x+1)^2 + 5$.

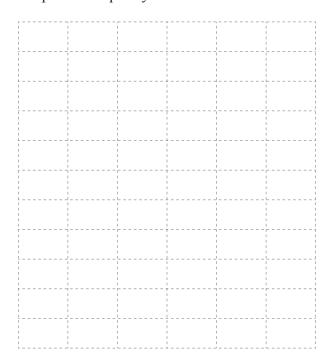


- 6. Modern metal cans, like the one shown, are usually made from steel, and then covered with a thin layer of tin.

a. Write an inequality representing the amount of sheet metal that can be used to make a can that is 10 cm tall.

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b. Graph the inequality.



c. Explain how the graph can be used to determine the minimum amount of metal required for cans of various radii.

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completely accurate.

3	i.	Explain a factor that the surface area of a cylinder does not account for.
(5)	ii.	Suggest a change to a surface area of a cylinder inequality that would make it more accurately represent the amount of metal required to make a tin can like the one shown.

d. Solving this problem using the formula for the surface area of a cylinder is not

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