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| **Doubling the Dimensions- 6.NS.8** |
| **Domain** | **The Number System** |
| **Cluster** | **Apply and extend previous understandings of numbers to the system of rational numbers.** |
| **Standard(s)** | **6.NS.8** Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.**6.NS.5** Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. |
| **Materials** | Activity sheet |
| **Task** |  **Doubling the Dimensions**Part 1:The middle school is in the shape of a rectangle. It is plotted on a map with the points (-1,3), (-1,-4) and two other points. The perimeter of the school is 26 units. Draw the school on the coordinate grid and label the 2 other vertices.*Coordinate grid on the activity sheet.* Part 2:The school board decides to double both dimensions of the school. Draw the new vertices on the coordinate grid. List the ordered pairs for each vertex. What is the perimeter of the new school building? Part 3: Explain how you know that your answer in Part 2 is correct. |

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| **Rubric** |
| **Level I** | 1. **Level II**
 | **Level III** |
| Developing Proficiency* Student uses inappropriate solution strategy and does not get the correct answer.
 | Not Yet Proficient * There are one or two errors.
 | Proficient in Performance * Accurately solves problem
* Part 1: The rectangle is drawn correctly. The two missing points can either be (5,3) and (5,-4) OR (-7,3) and (-7,-4).
* Part 2: A new rectangle with a perimeter of 52 units is drawn correctly with correct ordered pairs for vertices.
* Part 3: The explanation is clear and accurate.
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| **Standards for Mathematical Practice** |
| **1. Makes sense and perseveres in solving problems.** |
| **2. Reasons abstractly and quantitatively.** |
| **3. Constructs viable arguments and critiques the reasoning of others.** |
| 4. Models with mathematics. |
| 5. Uses appropriate tools strategically. |
| **6. Attends to precision.** |
| 7. Looks for and makes use of structure. |
| 8. Looks for and expresses regularity in repeated reasoning. |

**Doubling the Dimensions**

Part 1:

The middle school is in the shape of a rectangle. It is plotted on a map with the points

(-1,3), (-1,-4) and two other points. The perimeter of the school is 26 units.

Draw the school on the coordinate grid and label the 2 other vertices.



Part 2:

The school board decides to double both dimensions of the school. Draw the new vertices on the coordinate grid. List the ordered pairs for each vertex. What is the perimeter of the new school building?

Part 3:

Explain how you know that your answer in Part 2 is correct.