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| **Doubling Areas- 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 Areas**Part 1:Rectangle A has vertices at (-2,3), (1,3), (1,-3) and one other point.Rectangle B has vertices at (-3,-4) and (-3, -8), and two other points. *Coordinate grid on the activity sheet.* What the other vertex for Rectangle A? Draw the rectangle on the coordinate grid.What is the area of Rectangle A?Part 2:The area of Rectangle B is twice as large as the area of Rectangle A. What are the two other vertices for Rectangle B? Draw the rectangle on the coordinate grid. What is the area of Rectangle B? Part 3: Explain how you solved Part 2.  |

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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 two rectangles are drawn correctly. The other vertex for Rectangle A is (-2,-3). The area is 18 square units, since the dimensions are 3 and 6.
* Part 2: The area of Rectangle B is 36 square units. One dimension is 4 units since (-3,-4) to (-3,-8) is 4 units. The other dimension must be 9 units. This means that the other 2 vertices can be (-12,-4) and (-12,-8) OR (6,-4) and (6,-8).
* 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 Areas**

Part 1:

Rectangle A has vertices at (-2,3), (1,3), (1,-3) and one other point.

Rectangle B has vertices at (-3,-4) and (-3, -8), and two other points.

*Coordinate grid on the activity sheet.*

What the other vertex for Rectangle A? Draw the rectangle on the coordinate grid.

What is the area of Rectangle A?



Part 2:

The area of Rectangle B is twice as large as the area of Rectangle A. What are the two other vertices for Rectangle B? Draw the rectangle on the coordinate grid. What is the area of Rectangle B?

Part 3: Explain how you solved Part 2.