OPEN RESPONSE # _____

a. Name six pairs of numbers with a sum of -4.

b. Plot the pairs of numbers from part a, and connect the points.

c. Find the coordinates of a point on the connecting line. (*Choose a point that is different from the points you plotted in part b.)* What is the sum of these coordinates?

d. Pick another point on the line and find the sum of its coordinates.

e. If you picked a third point on this line, what do you think the sum of its coordinates would be?

f. What would a graph of pairs of numbers whose sum is -5 look like? Justify your answer.

Rubric for **Sums of Numbers**	
4	All parts of the question are correct. Student receives all 5 points.
3	Student answers all but one or two parts correctly. Student receives 3.5 to 4.75 points.
2	A student answers enough of question to receive 2 to 3.25 points.
1	Student shows minimal understanding. Student receives .75 to 1.75 points.
0	Student's answer is totally incorrect or irrelevant. (Student receives less than .5 point.)

Appropriate Answers

a. All six pairs of numbers have a sum of -4. (If all pairs are correct, give 1 point, if half are correct give .5 point, if one or two are correct, give .25 point.)
b. All six pairs of numbers are plotted correctly and connected to form a line or line segment. The coordinate grid is drawn correctly and the axes are labeled correctly with *x* and *y*. (If all points are plotted correctly with line drawn, give 1 point. If half are plotted correctly give .5 point. If one or two are plotted correctly, give .25 point.)
c. A correct set of coordinates and the correct sum is given. (1/2 point)
d. A correct set of coordinates and the correct sum is given. (1/2 point)
e. The correct sum is given. (1/2 point)
f. A correct description of the graph is given and a graph is drawn to show justification of description. (Description must include where it crosses the y and/or x axis and that it is a line.) (The graph should include at least 3 pairs of numbers whose sum is -5.) (If all is correct, give 1.5 points. If only the description or only the graph is correct, give .5 points.) (If all is correct, except for a minor error on give 1 point.

Grade Level: 7th and 8th
Content Area(s): Math
Instructional Unit: Addition of Integers, Coordinate Graphing, Graphs of Lines

Core Content	**What Students Need to be Able to Do:**	**Classroom Strategies/Activities Leading up to Question**	**Type of Open Response**
Math 1.1.1 Rational Numbers (Integers) **Math 1.2.1** Add integers **Math 4.1.3** Cartesian Coordinate System and Ordered Pairs **Math 4.2.3** Model equations concretely, pictorially (graphs) **Math 4.3.1** How everyday situations, tables, graphs, patterns, rules, and equations relate to each other	Add Integers Plot points on a 4-Quadrant Cartesian Coordinate Plane Make predictions	Connected Math "Accentuate the Negative" Integers Activity 5 Adding and Subtracting Integers; Plotting ordered pairs and graphing lines.	Scaffolded

Question:

a. Name six pairs of numbers with a sum of -4.
b. Plot the pairs of numbers from part *a*, and connect the points.
c. Find the coordinates of a point on the connecting line. ***(Choose a point that is different from the points you plotted in part b.)*** What is the sum of these coordinates?
d. Pick another point on the line and find the sum of its coordinates.
e. If you picked a third point on this line, what do you think the sum of its coordinates would be?
f. What would a graph of pairs of numbers whose sum is -5 look like? Justify your answer.