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6.NS.8 Task • The Number System

Water Crisis in Haiti

Part 1

On January 12, 2010, an earthquake devastated the country of Haiti. Hundreds of thousands lost their homes, their livelihoods, and access to fresh drinking water. Victims were forced to use water contaminated by human waste and trash for drinking, cooking, and washing. This led to outbreaks of cholera, a potentially fatal illness.

Since then, agencies across the globe have been working to help stop the spread of cholera. One strategy to limit the number of cholera outbreaks is to install chlorination or filtration systems to clean the water. You work for an organization that helps to provide clean water in Haiti. Your job is to determine which areas have been hit the hardest by creating a graph of outbreak data. The following table lists affected areas, their coordinates, and the numbers of reported cases of cholera.

| Affected area | Coordinates | Approximate reported cholera cases |
|----------------|-------------|------------------------------------|
| Belvil | (4, 3) | 4,500 |
| Calfebe | (4, -3) | 6,600 |
| Carrefour | (-5, 4) | 10,700 |
| Chafa | (-5, -1) | 4,000 |
| Cité Soleil | (-1, 7) | 11,100 |
| Delmas | (-1, 4) | 5,600 |
| Henry | (-6, -3) | 3,700 |
| Kenscoff | (2, -3) | 10,300 |
| Pétionville | (0, 1) | 3,000 |
| Port-au-Prince | (-2, 4) | 12,000 |

Adapted from www.walch.com/CCTTG6HaitiCholera

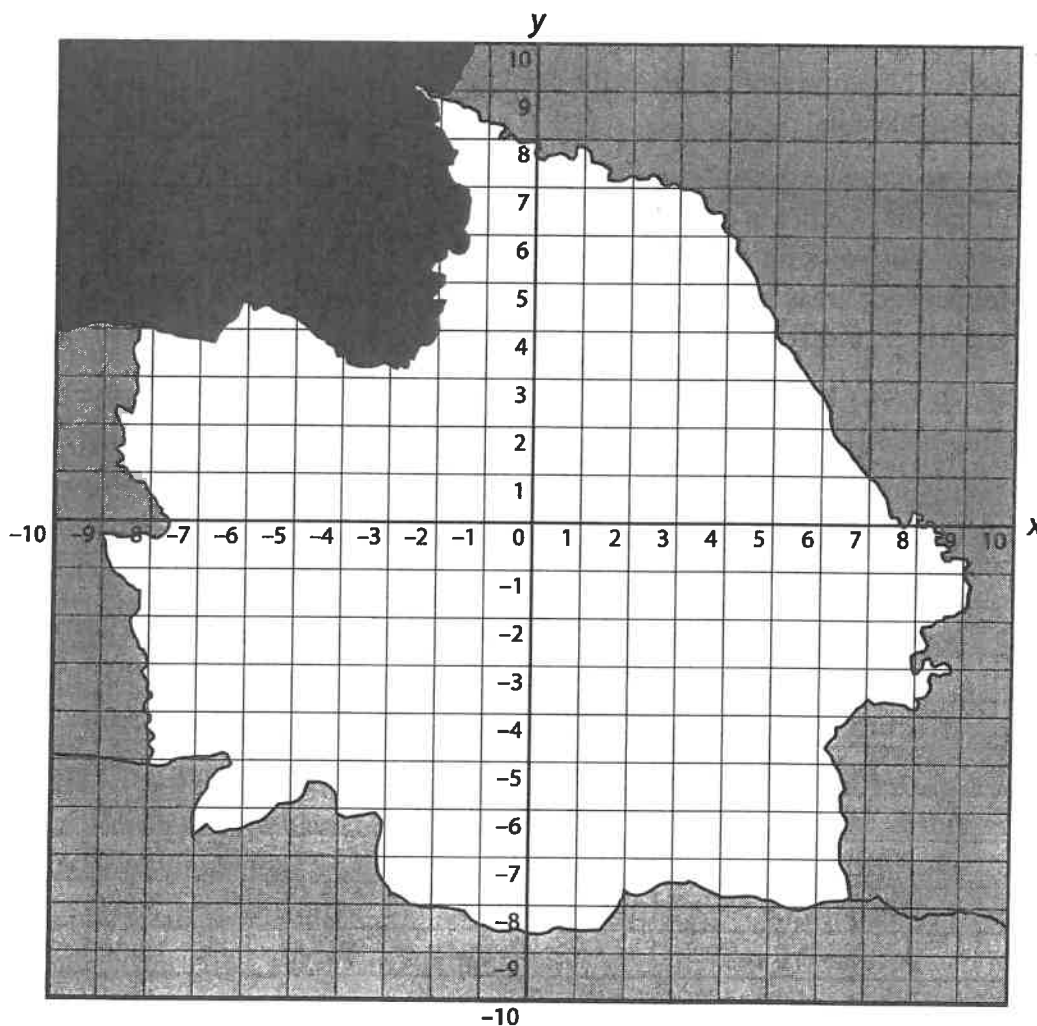
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1. Plot and label the affected areas on the coordinate plane of the map that follows.



2. Mark any affected areas with more than 10,000 reported cholera cases in red.
3. Looking at your graph, which quadrant should organizations target first for chlorination and filtration systems? Explain your reasoning.

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Part 2

You need to present your case for installing chlorination systems to your organization's board of directors. You must figure out the best order in which to install the systems in each affected area.

4. Explain how to use absolute value to calculate the distance between Henry and Calfebe. What is the distance between these two places in map units? _____

5. The airport is located in Sarthe, which has coordinates of (0, 7). Plot and label this place on your map.

6. Which affected area on your map is closest to the airport? _____

Give the coordinates. _____

Using the units on the map, how far away is the airport from this affected area?

How did you calculate this distance?

7. You want to travel to the center of Port-au-Prince since this area has the most cases of reported cholera outbreaks. To get there, you travel through Delmas. What is the distance in map units to Delmas from the place you listed for question 6? _____

How did you calculate that distance?

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8. Carrefour is the next affected area where you need to install chlorination and filtration systems. How far is Carrefour from Port-au-Prince in map units? _____

Explain your answer.

9. Which affected area would you choose to help next? Explain your reasoning using horizontal distance, vertical distance, and absolute value.

10. Create a plan to visit the remaining affected areas. Write the order in which you would visit them and give the horizontal and vertical distances from each affected area to the next one. End at the airport. Use the table below to help organize your plan.

| Originating area | Horizontal distance (<i>x</i>-axis) | Vertical distance (<i>y</i>-axis) | Destination |
|-------------------------|--|--|--------------------|
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