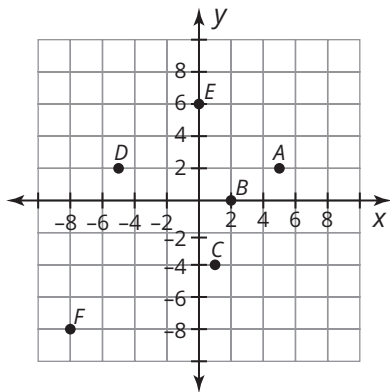


A Sort of Sorts

Analyzing and Sorting Graphs

Warm Up

1. Write the coordinates of each point and name the quadrant or axis where the point is located.



Learning Goals

- Review and analyze graphs and graphical behavior.
- Determine similarities and differences among various graphs.
- Sort graphs and give reasons for the similarities and differences between the groups of graphs.

You have used graphs to analyze the relationship between independent and dependent quantities. Do the graphs of certain types of relationships share any characteristics?

Let's Sort Some Graphs

Mathematics is the science of patterns and relationships. Looking for patterns and sorting patterns into different groups based on similarities and differences can provide valuable insights. In this lesson, you will analyze many different graphs and sort them into various groups.

- 1. Cut out the 17 graphs at the end of the lesson. Then analyze and sort the graphs into at least 2 different groups. You may group the graphs in any way you feel is appropriate.**

Record the following information for each of your groups.

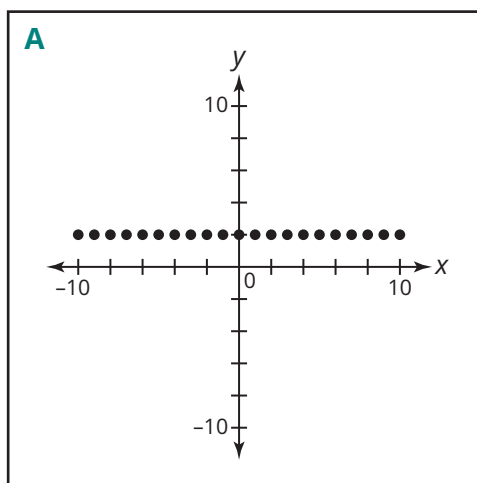
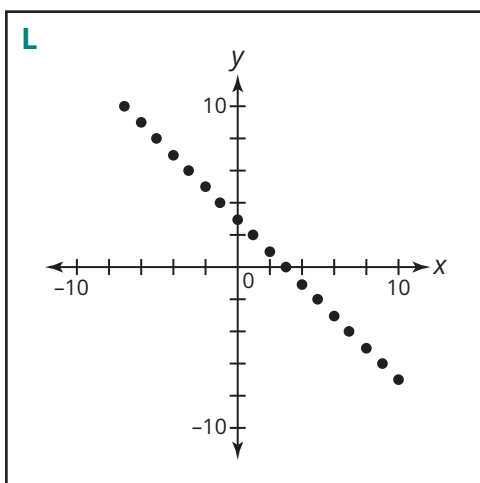
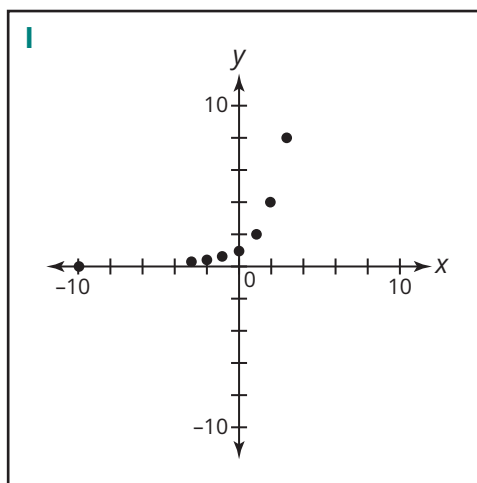
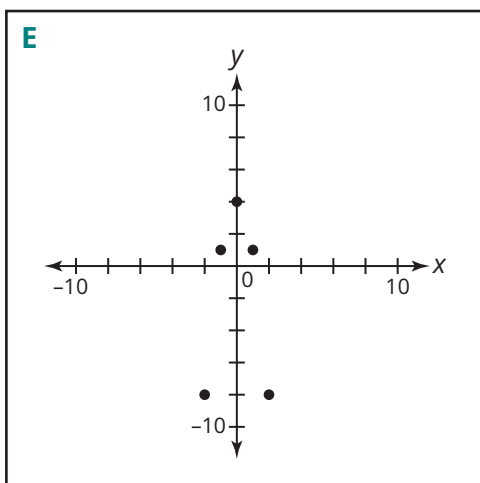
- **Name each group of graphs.**
- **List the letters of the graphs in each group.**
- **Provide a rationale for why you created each group.**

Keep your graphs, you will need them in the next lesson.



In this activity, consider the different ways the graphs are grouped.

1. Matthew grouped these graphs together. Why do you think Matthew put these graphs in the same group?

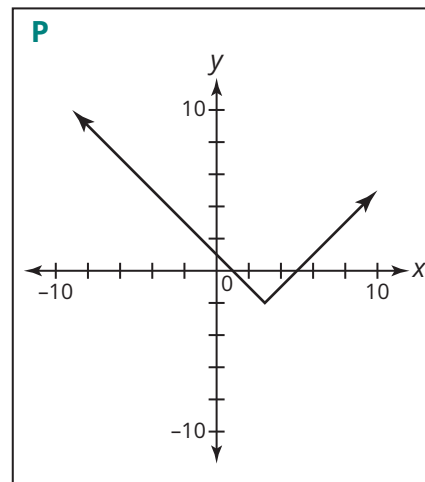
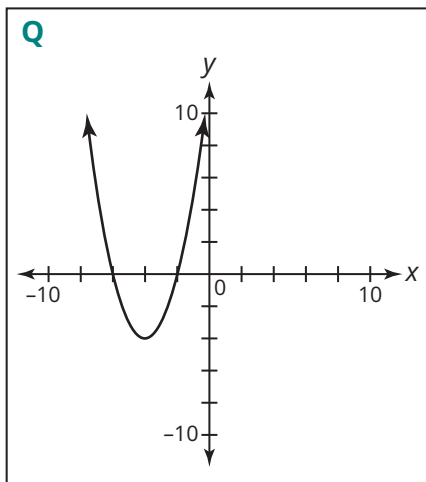
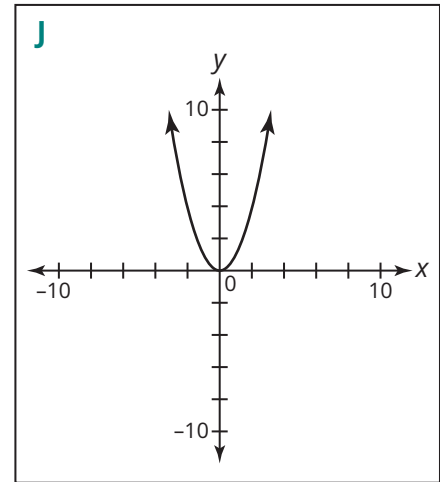
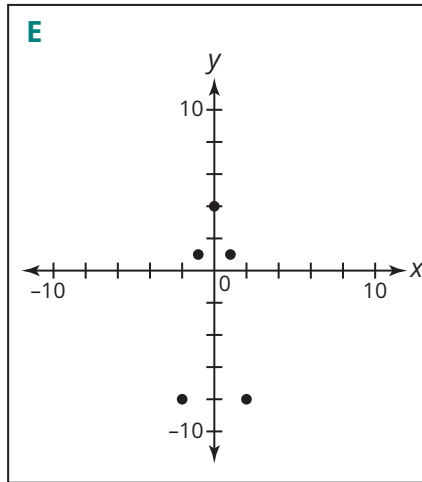
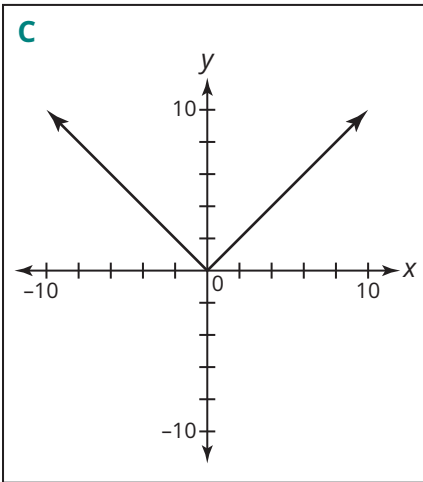


2. Consider Ashley's correct grouping.

Ashley



I grouped these graphs together because they all have a vertical axis of symmetry. If I draw a vertical line through the middle of the graph, the image is the same on both sides.



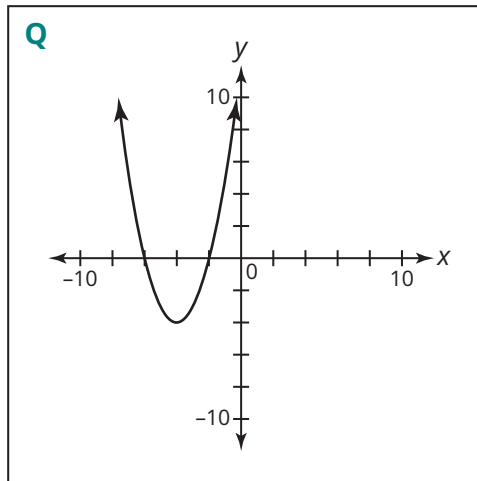
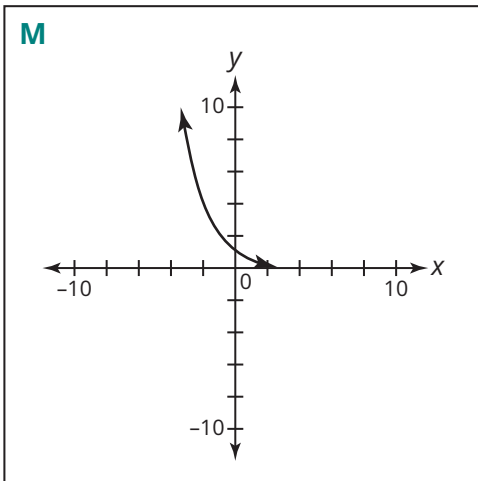
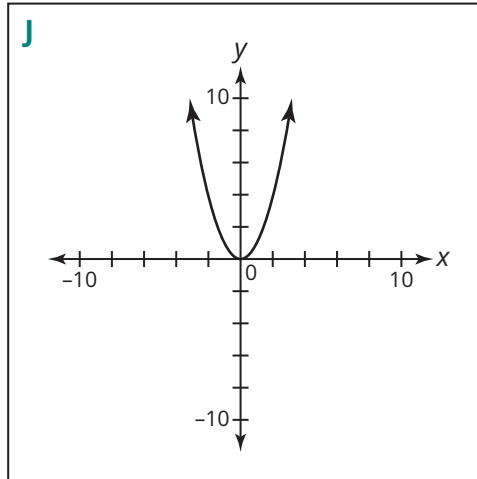
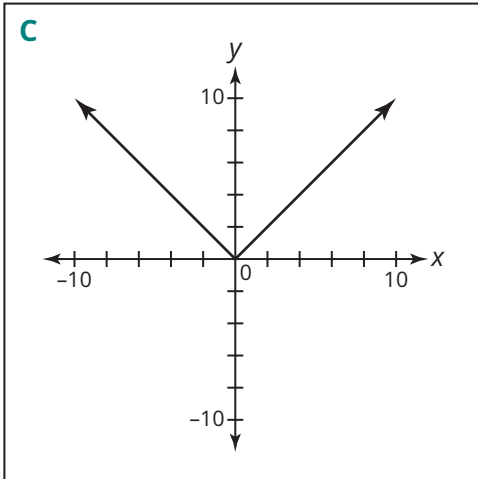
a. Show why Ashley's reasoning is correct.

b. If possible, identify other graphs that have a vertical axis of symmetry.

3. Consider Duane's incorrect grouping.

Duane

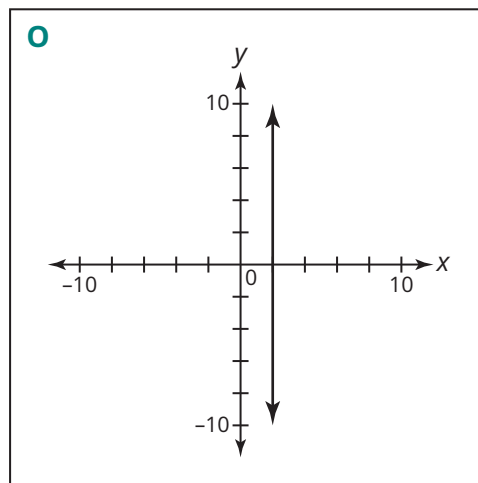
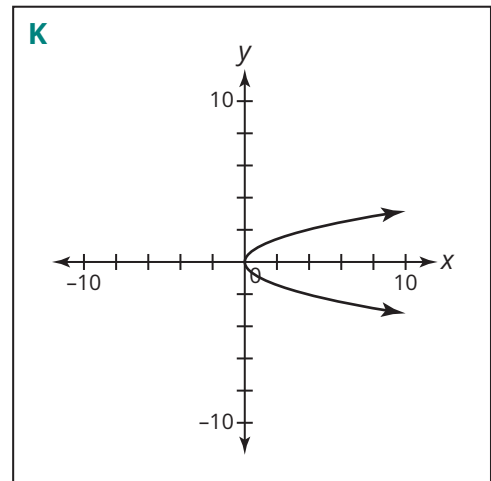
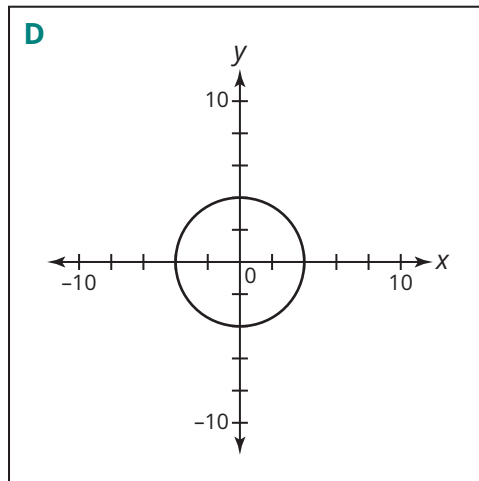
I grouped these graphs together because each graph goes through only two quadrants.



a. Explain why Duane's reasoning is not correct.

b. If possible, identify other graphs that go through only two quadrants.

4. Judy grouped these graphs together, but did not provide any rationale.



a. What do you notice about the graphs?

b. What rationale could Judy have provided?

TALK the TALK

Compare and Contrast

1. Compare your groups with your classmates' groups. Create a list of the different graphical behaviors you noticed.



Ask

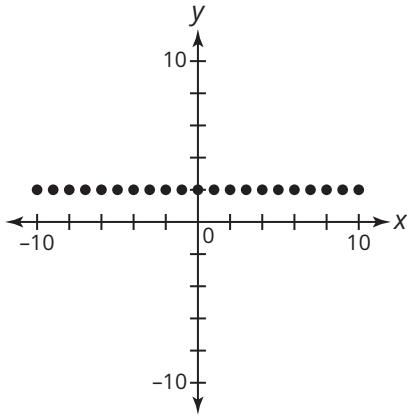
• yourself:

Are any of the graphical behaviors shared among your groups? Or, are they unique to each group?

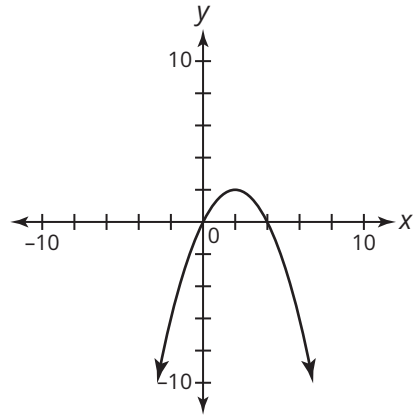
Graph Cards



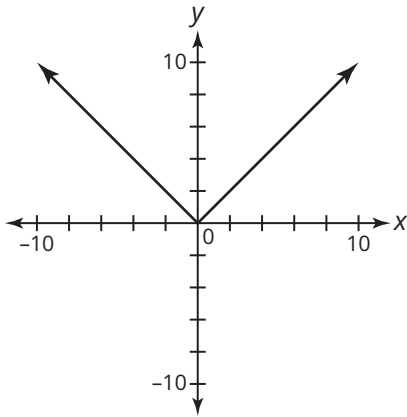
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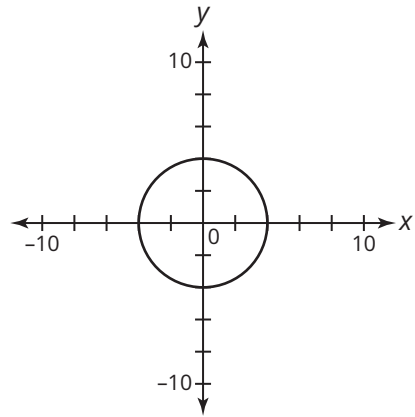
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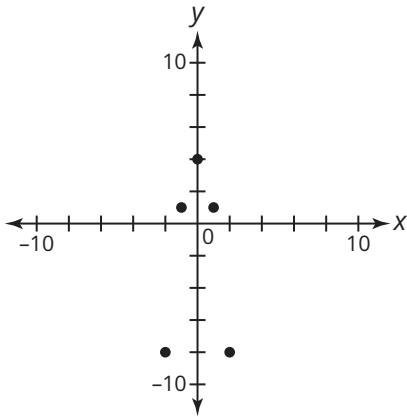
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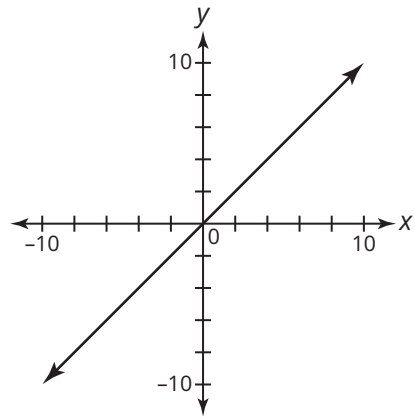
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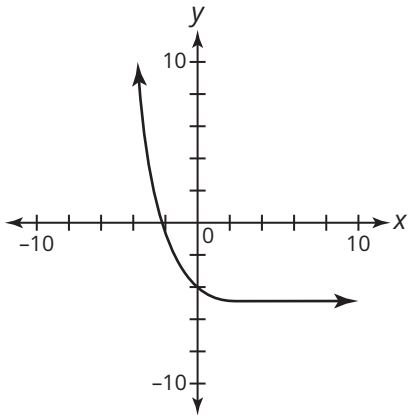


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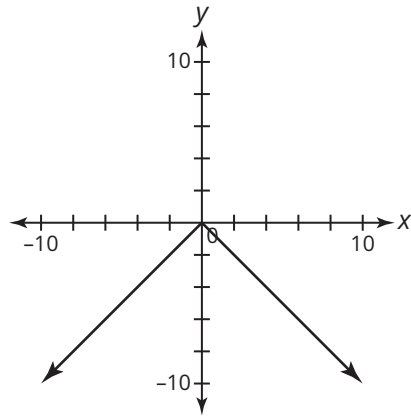




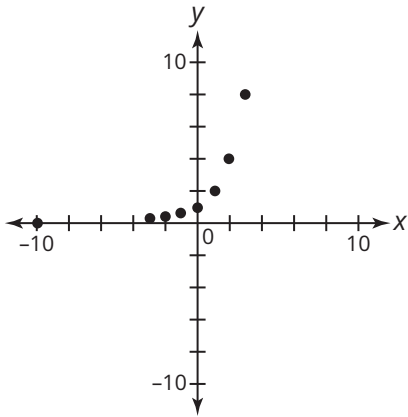
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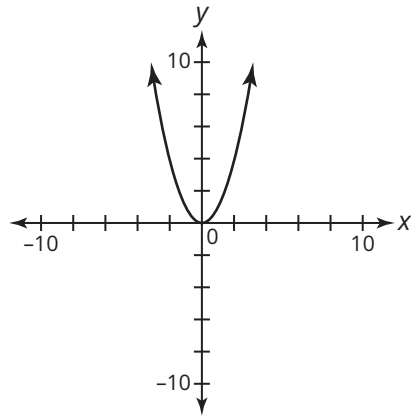
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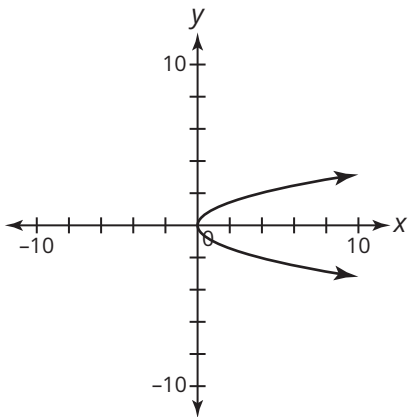
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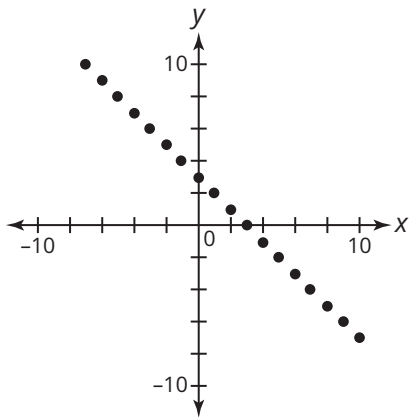
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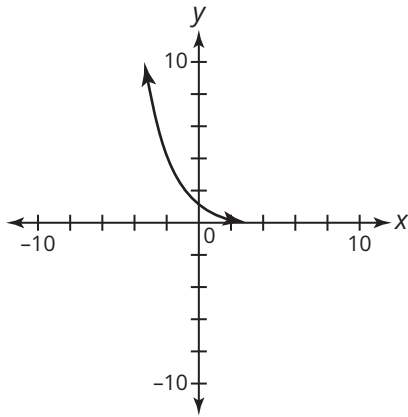


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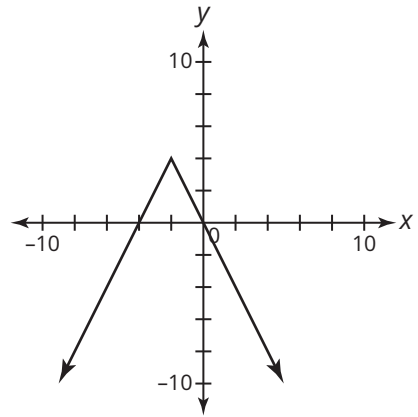




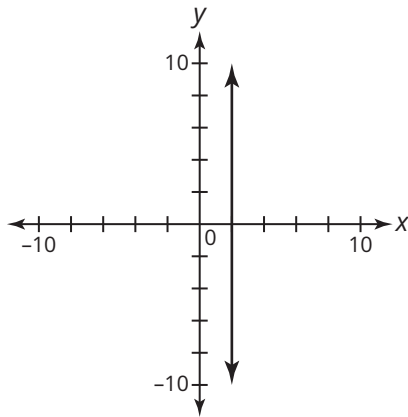
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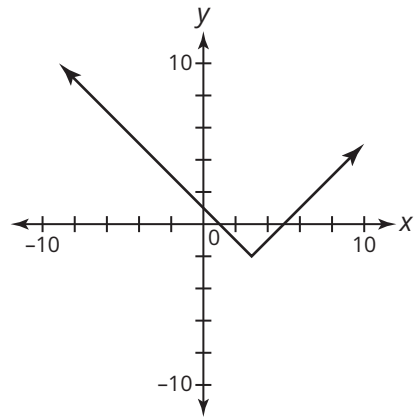
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