Problem 1 – Introduction

On page 1.3, drag point *P* around the plane. Watch how each coordinate changes with the location of *P*.

1. On page 1.4, try to move point *P* in such a way that the first coordinate stays the same. What kind of movement do you make?

2. Now on page 1.5, try to move point *P* in such a way that the second coordinate stays the same. What kind of movement do you make here?

Problem 2 – Game #1

Xavier and Yvette are playing a game in a fictional land called the Cartesian Plains. They keep track of their score by moving point *P*. Xavier's score is the first coordinate, and Yvette's score is the second coordinate. For example, as shown on page 2.2, Xavier is in the lead, and the score is 4 to 3.

On page 2.2, move point *P* to reflect different scoring situations in the game and to help you answer the following questions on pages 2.4-2.8.

3. Where is a point when Xavier has scored no points?

4. Where is a point when Yvette has scored no points?

5. Where is a point when Xavier is in the lead with the most points?

6. Where is a point when Yvette is in the lead with the most points?

7. Where is a point when the score is tied?

Problem 3 –Game #2

The graph on page 3.2 shows a certain scoring situation for Xavier and Yvette's game.

8. Grab and drag point P. Describe what scores in the game are represented by the coordinates of P.

The graph on page 3.4 shows yet another scoring situation for the game.

9. Grab and drag point *P*. Describe what scores in the game are represented by the coordinates of *P*.

Problem 4 – Game #3

On page 4.2, the points *X* and *Y* are attached to the axes. Point *P* again represents the score in the game, which you can change by dragging points *X* and *Y*. Experiment with the scoreboard by dragging points *X* and *Y*, and thus changing Xavier's and Yvette's scores.

10. What line segment in the graph has a length equal to Xavier's score?

11. What line segment in the graph has a length equal to Yvette's score?