Review Exercise 3-A

Chapter 3

1. Find the changes in the *x*- and *y*-coordinates from:

   a) *A* to *B*.

   b) *B* to *C*.

   c) *C* to *A*.
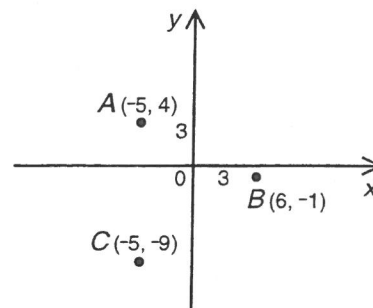
2. On the following Cartesian plane, find the distance between points:

   a) *A* and *B*;

   b) *B* and *C*;

   c) *C* and *D*;

   d) *D* and *E*.
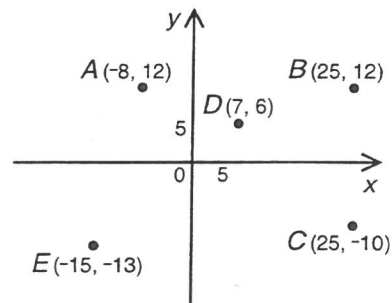
3. Nicole plans to install an automatic sprinkler to make watering her lawn easier. She draws her garden on a Cartesian plane with axes scaled in decimetres. The origin of the plane corresponds to the position of a scarecrow, and the plant that is furthest away is located at point (-34, -18). The sprinkler's range is 60 dm. Can all the plants be watered if Nicole places the sprinkler at point (23, 15)? Justify your answer.
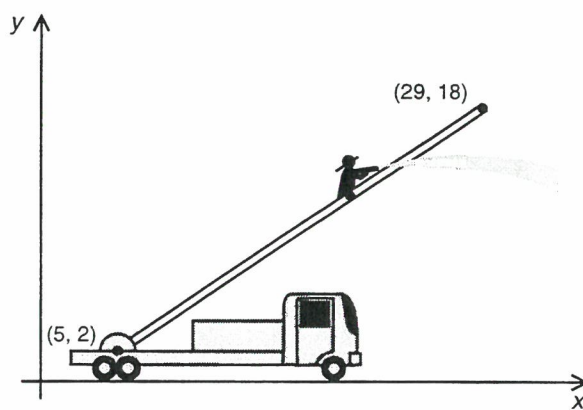
4. Find the coordinates of the point:

   a) That divides $\overline{OA}$ in a ratio of $\frac{1}{2}$.

   b) That divides $\overline{BD}$ in a ratio of $\frac{7}{3}$.

   c) Located at $\frac{5}{9}$ of the length of $\overline{CA}$.

   **d)** Located at $\frac{2}{5}$ of the length of $\overline{AD}$.
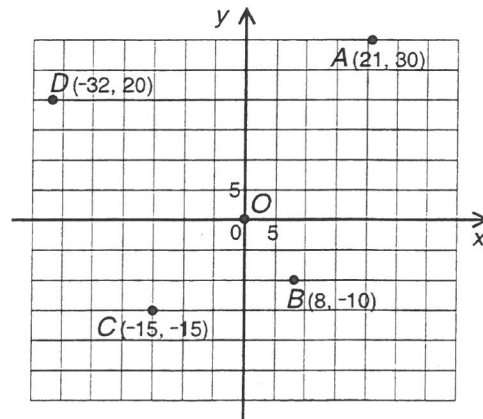
5. A firefighter must position herself at 5/8 of the length of a ladder to battle a blaze. The situation appears on the graph at right; the axes are scaled in metres.

   a) What are the firefighter's coordinates?

   b) What distance has she travelled on the ladder, to the nearest hundredth of a metre?

   (29, 18)

   (5, 2)

6. Transport officials must add two stops on 9th Street between 10th Avenue and 11th Avenue because of a detour. The distances between the four stops are equal. The axes are scaled in metres on the graph at right. What are the coordinates of the two new bus stops?

   10th Avenue

   (224, 468)

   9th Street

   (65, 105)

   11th Avenue
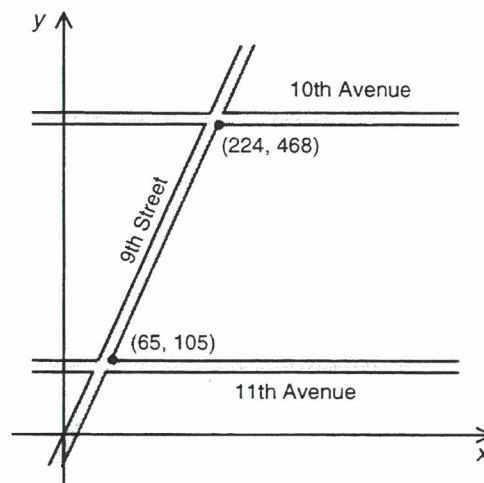
7. Lisa trains regularly in preparation for the Québec Games. She swims in a straight line from Windy Wharf to Bullfrog Wharf. When she has completed 2/3 the distance separating the wharves, her position corresponds to point $P(585, 870)$. What are the coordinates of Bullfrog Wharf if the axes are scaled in metres?

   Bullfrog Wharf

   P (585, 870)

   (295, 200)

   Windy Wharf
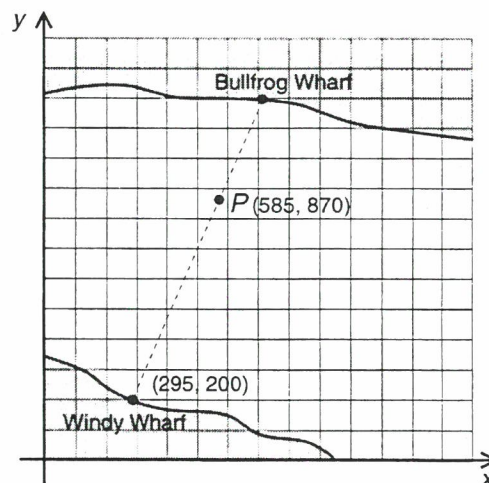
8. The coordinates of city A are (50, 157) and those of city B are (84, 201) on a Cartesian plane whose axes are scaled in kilometres. If city B is located halfway between city A and city C, what are the coordinates of city C?