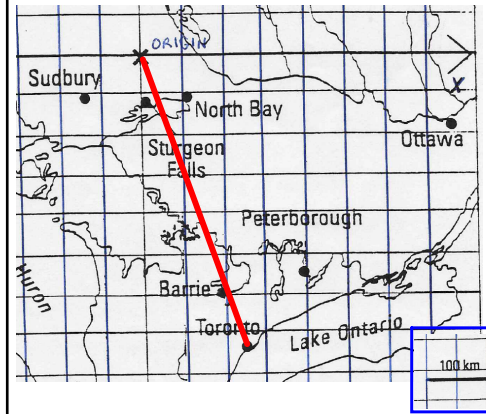# Distance Between Two Points

## Learning Goal

Lesson Goal (Big Idea)
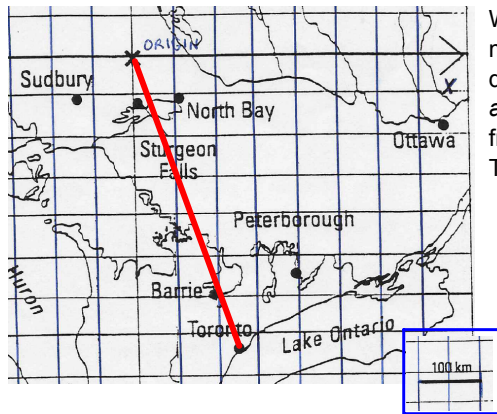
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## Minds on Math



Without using direct measurement, determine an *approximate* distance from the origin to Toronto.
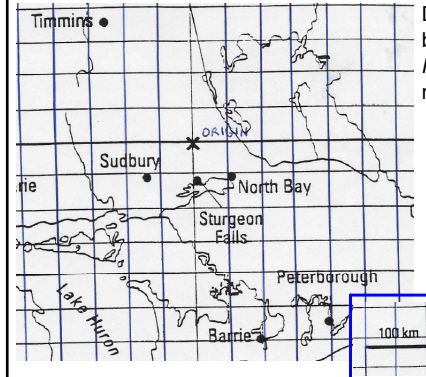
Minds on...

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## Minds on Math (What'd you do?)



Without using direct measurement, determine an *approximate* distance from the origin to Toronto.
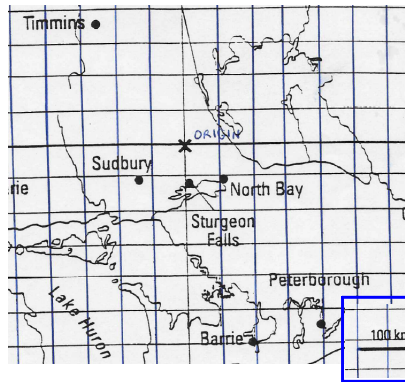
MInds on...Student Solution(s)

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## Take Action!



Determine the an approximate distance between Timmins and Peterborough. *Remember*: Do not use direct measurement.

Take Action: Prompt
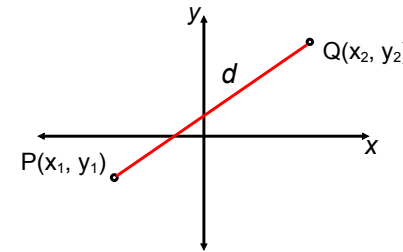
## Take Action! (What'd you do?)



Determine the an approximate distance between Timmins and Peterborough.
*Remember*: Do not use direct measurement.

Take Action: Student Solution(s)

## Putting it Altogether: The Making of a Formula

Let's say that two cities are located at points $P(x_1, y_1)$ and $Q(x_2, y_2)$.

Develop a formula, using these endpoints, that represents the distance, $d$, between the two cities.
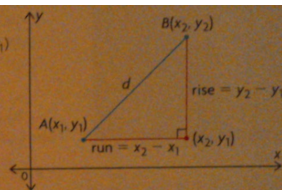


Consolidation

## Key Ideas

From p85 of your textbook:



**Key Idea**

- The distance, $d$, between the endpoints of a line segment, $A(x_1, y_1)$ and $B(x_2, y_2)$, can be calculated using the distance formula:

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

**Need to Know**

- The Pythagorean theorem is used to develop the distance formula, by calculating the straight-line distance between two points.
- The distance between a point and a line is the shortest distance between them. It is measured on a perpendicular line from the point to the line.

Key Ideas

## Practice

p86

#2a, 6, 7, 12, 14

Practice

**2**