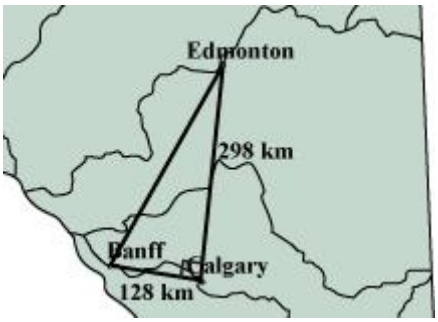
Maps and the Pythagorean Theorem Practice

1. Shayla knows the distance from Calgary to Banff is 128 km. She wants to know the straight line distance from Banff to Edmonton. Shayla also knows the distance from Calgary to Edmonton is 298 km. Shayla estimates that she can use a right triangle and its properties to help her solve the problem.

Step 1: Identify the given and the required values.

- *The distance from Calgary to Banff is 128 km.*
- *The distance from Calgary to Edmonton is 298 km.*
- *The distance from Banff to Edmonton is the unknown.*

Step 2: Draw and label the diagram.



Steps 3 and 4: Write the formula, substitute known values, and solve.

$$a^2 + b^2 = c^2$$

$$128^2 + 298^2 = c^2$$

$$16\ 384 + 88\ 804 = c^2$$

$$105\ 188 = c^2$$

$$324.3 = c$$

The straight line distance from Banff to Edmonton is approximately 324.3 km.

Step 5: Review your answer

The distance from Banff to Edmonton is the hypotenuse, which is the longest side of the triangle. As such, the answer is reasonable.