Problem of the Week

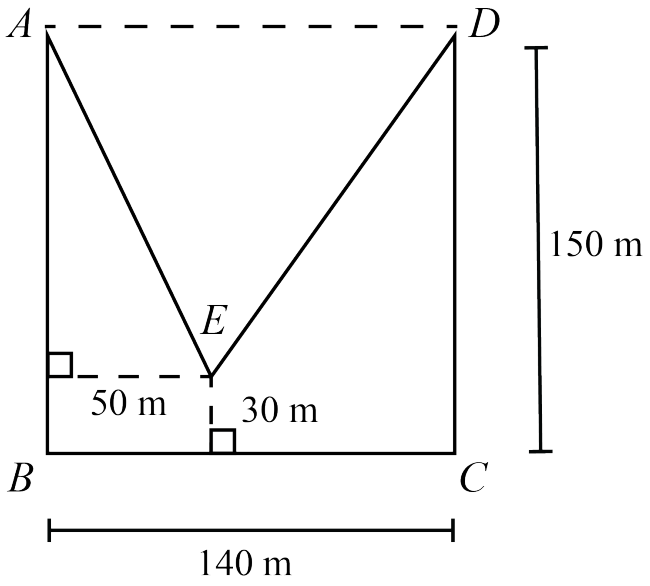
Problem C

Cache Circuit

Maria is setting up a geocaching course. She begins at point A, then walks south 150 m to point B, then walks east 140 m to point C, and then walks north 150 m to point D.

She hides a final cache at point E, which is located 50 m east of path AB and 30 m north of path BC, as shown in the diagram.

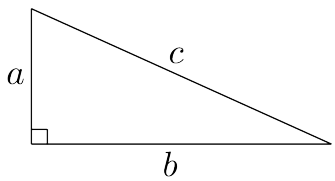
Determine the distance from A to E, the distance from D to E, and the total distance around the five-sided route $ABCDEA$.



NOTE: You may find the following useful:

The *Pythagorean Theorem* states, "In a right-angled triangle, the square of the length of hypotenuse (the side opposite the right angle) equals the sum of the squares of the lengths of the other two sides."

In the right-angled triangle shown, c is the hypotenuse, a and b are the lengths of the other two sides, and $c^2 = a^2 + b^2$.



THEMES: ALGEBRA, GEOMETRY & MEASUREMENT, NUMBER SENSE