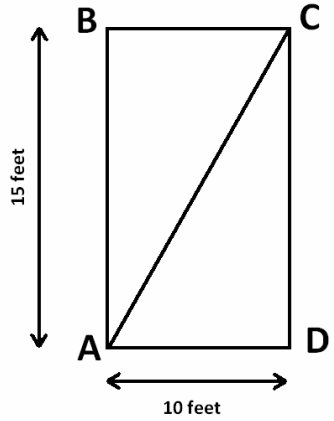
QUESTION:
Suppose the dimensions of the rectange foundation must be 15 feet by 10 feet. What length of string must be used to represent the length of the diagonal of this rectangle? Use the four problem solving steps when writing your solution.

SOLUTION:
Let's draw a rectangle foundation, namely ABCD.



ABCD – rectangle and AC is its diagonal. Triangle ABC is right triangle (angle ABC is right angle, because ABCD is rectangle), and AC is its hypotenuse. Hence, using Pythagoras' theorem we obtain, that

$$AC^2 = AB^2 + BC^2$$
$$AC = \sqrt{15^2 + 10^2}$$
$$AC = \sqrt{325}$$
$$AC = 5\sqrt{13} \approx 18.0$$

ANSWER
$5\sqrt{13} \approx 18.0$ feet