

Fall Poster Solution



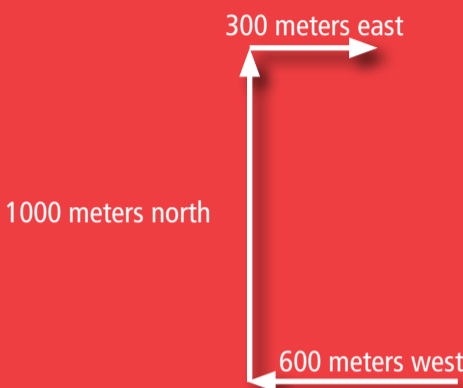
How far was the treasure from Prella and Bodo's original location?

To solve this one, let's draw a diagram of Prella and Bodo's travels.

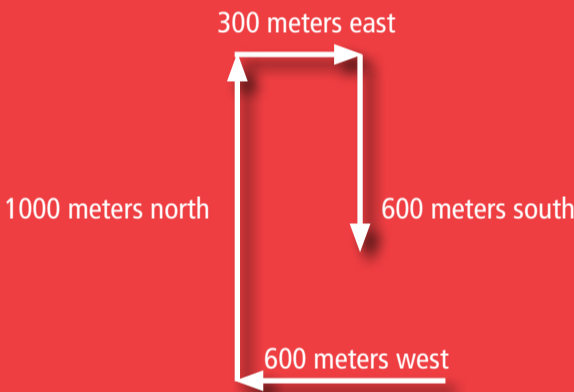
First, the problem says they go "600 meters due west."



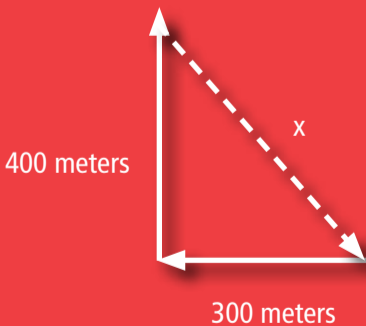
Next, it says they walk "1,000 meters due north and then 300 meters due east."



Finally, it says they walk "600 meters due south."



Now, let's look at where that puts Prella and Bodo relative to where they began. If we start by just looking at their travels east and west, we see that they traveled 600 meters due west but later they traveled 300 meters due east. This means that they traveled a net distance of $600 - 300 = 300$ meters due west of the starting point. Looking at their travels north and south, we find that they traveled a net distance of $1000 - 600 = 400$ meters due north. Since all of the travel was in a cardinal direction, we can form a right triangle using their net travel distances, as shown below.



Using the Pythagorean Theorem we can find the distance, x , they are from their starting point.

$$\begin{aligned}x^2 &= 400^2 + 300^2 \\x^2 &= 250,000 \\x &= 500 \text{ meters}\end{aligned}$$

(Note: These distances are multiples of the 3-4-5 Pythagorean triple.)

Thus, Prella and Bodo end up 500 meters from where they began.