Script

Example: Surface Area of a Triangular Prism

Problem:

Find the surface area of a right triangular prism. In this case the triangle has a base 6 centimeters and a height of 8 centimeters, and the length of an edge of the prism is 14 centimeters.

Solution:

As usual, the first step is to draw and label the surfaces of the figure.

In this case, the bases are both triangles. The dimensions are 6 by 8.

The length of the edge of the prism is 14 cm, so all the rectangles will have a length of 14 cm.

The bottom side of the prism is a rectangle that is 6 by 14.

The back side of the prism is also a rectangle that is 8 by 14.

The slanted side of the prism is a rectangle as well. We know that this rectangle has one dimension equal to 14 centimeters, but we are not given the length of the other dimension.
Hmmm…how could we find it?

Remember that the triangle is a right triangle, so we can use the Pythagorean Theorem to find the third length.

The legs of the triangle are 6 and 8, so 6 squared plus 8 squared equals x squared.

Simplifying all of this and solving, we get x equals 10.

The last rectangle has dimensions 10 by 14.

Now that we have the shapes and dimensions of all the surfaces, we can find the area of each surface.

There are two triangles. The area of a triangle is one-half base times height. In this case the base is 6 and the height is 8, so the area of each triangle is 24.

The bottom of the figure has dimensions 6 by 14, which is 84.

The back of the figure has dimensions 8 by 14, which is 112.

The slanted side of the figure has dimensions 10 by 14, which is 140.

Now we just need to add all these areas together to get the total surface area.

This figure has two triangles and the three rectangles. Be sure that you include BOTH triangles!!

The surface area is 2 times 24 plus 84 plus 112 plus 140, which equals 384.

As usual, it is very important that you label your answer. The surface area of this prism is 384 centimeters squared.

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