I now want to discuss the idea of vectors being perpendicular to each other.

When the dot product is 0, the vectors are perpendicular to each other. And let's take a look at that.

Suppose I have a vector A, which is a familiar one. We've used it several times. Minus 2y plus 4 z roof. And B equals minus x roof plus 3 y roof plus B of z, which I do not know, z roof. But I'm telling you that the vector A is perpendicular to the vector B. And I'm asking you, what should this value be so that the two are perpendicular to each other? And that is something that does happen sometimes in these problems of Newtonian mechanics. That you want to get two vectors at right angles. And that this is a very fast way sometimes to get the vectors. Namely, you set the dot product equal to 0.

What is the dot product? A dot B must be 0. A dot B is the x component of A times the x components of B. That is minus 3. The product of these components is minus 6. And the product of these components is plus 4 Bz. That has to be 0, so when B of z equals plus 9/4, the angle theta will be 90 degrees. They are perpendicular to each other.