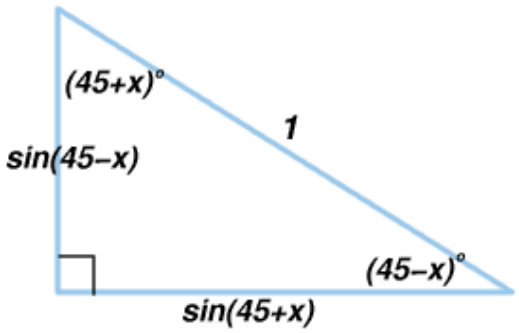

DEGREE CEREMONY

Draw a triangle with angles x, $(45 + x)$ and $(45 – x)$ degrees.

What does Pythagoras Theorem tell you about these angles?

Use this information to find this sum of squares of sines:

$$\sin^2 1^o + \sin^2 2^o + \ \ldots \ + \sin^2 359^o + \sin^2 360^o$$

HELP

What does Pythagoras Theorem tell you about:

$\sin^2 1^o + \sin^2 89^o$

and

$\sin^2 44^o + \sin^2 46^o$

and other similar sums of $\sin^2$ for angles between 1^o and 89^o.

Now use this information to find part of the sum of squares required and use your knowledge of the values of the sine function for other angles to get the answer.

NEXT

Look for a similar identity for sums of $\cos^2 x$ for different values of x.