Answer to Question #88536 – Math – Trigonometry

Question

Evaluate $(1-2\cos^2 25^\circ)/(1-2\sin^2 65^\circ)$

Solution

For the given problem, we first obtain the relation between the given sine and cosine angles. This has been shown below:

$$cos\ 25^\circ = cos(90^\circ - 65^\circ) = sin\ 65^\circ$$
$$\Rightarrow cos\ 25^\circ = sin\ 65^\circ$$
$$\Rightarrow cos^2 25^\circ = sin^2 65^\circ$$

So, now putting this relation into the main given expression, we get:

$$\frac{(1 - 2cos^2 25^\circ)}{(1 - 2sin^2 65^\circ)}$$
$$= \frac{(1 - 2sin^2 65^\circ)}{(1 - 2sin^2 65^\circ)}$$
$$= 1$$

Answer: 1.