Answer on Question #83570 – Math – Trigonometry

Question

Jana is proving that the following trigonometric identity is true:
$$cos(-\theta)\tan\theta = \sin\theta$$
Which would be a correct first line of her proof?

$$cos(\theta)\tan\theta = \sin\theta$$

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Solution

Due to the symmetry of $cos(\theta)$(the cosine function is even, which means $cos(-\theta) = cos(\theta)$), the equality
$$cos(-\theta)tan(\theta) = sin(\theta)$$
is transformed to
$$cos(\theta)tan(\theta) = sin(\theta),$$
which is also valid due to the definition of the tangent function
$$tan(\theta) = \frac{sin(\theta)}{cos(\theta)}.$$
Answer: the correct first line would be $cos(\theta)tan(\theta) = sin(\theta)$.