Answer on Question #57980 – Math – Trigonometry

Question

The radian measure of an angle that is 125°25'50" is_____.

A: 2.19 radians
B: 2.25 radians
C: 3.49 radians
D: 7190.29 radians

Solution

We will use the formula

$$\text{radians} = \frac{\textbf{degrees} \times \pi}{\textbf{180}}$$

We expect the expression

$$radians = \frac{125{,}25 \cdot \pi}{180} = \frac{125{,}15 \cdot 3.1415}{180} = 2.19$$

The radian measure of an angle of 125°25'50" is 2.19 radians

Answer: A: 2.19 radians.

Question

An angle measuring 5.25 radians is equal to which of the angle measures given below? Use 3.14159 as the value of pi. Check all that apply.

300° 48'11"

300.80°

16.49°

16° 24'

Solution

We will use the ratio

180° - π *radians*

x° - $y\ radians$

hence

$$x^\circ \cdot \pi\ radians = 180^\circ \cdot y\ radians$$

Therefore

$$x^\circ = \frac{180^\circ \cdot y}{\pi}$$

Finally we get the expression

$x^\circ = \frac{180^\circ \cdot 5.25}{\pi} = \frac{180^\circ \cdot 5.25}{3.14159} = 300.80^\circ.$

Answer: 300.80°.

Question

The arc corresponding to a central angle of 125° in a circle of radius 10 feet measures _____ feet. Round your answer to two decimal places. Use 3.14 for pi.

Solution

We will use the formula

$C_A = \frac{\theta}{360°} \times 2\pi r$, where C_A is the arc length, and

r is the radius of the circle.

Finally we get the expression

$$C_a = \frac{125}{360} \cdot 10 \cdot 2\pi = \frac{125\pi}{18} = \frac{125 \cdot 3.14159}{18} = 21.89$$

Answer: 21.89 feet.