PCFU: Converting between Degrees and Radians H1-H2 Name: _____

Answers with explanations.

1. $112° = \frac{28\pi}{45}$ radians

   To convert to radian measure, I set up a proportion:
   $\frac{degree\ measure}{360°} = \frac{radian\ measure}{2\pi} \rightarrow \frac{112°}{360°} = \frac{x}{2\pi}$.
   I then cross multiplied to get: $112 \cdot 2\pi = 360 \cdot x$.
   I simplified to: $224\pi = 360x$.
   Then divided both sides by 360: $\frac{224\pi}{360} = \frac{360x}{360}$.
   Finally I reduced to get: $\frac{28\pi}{45} = x$.

2. $12° = \frac{\pi}{15}$ radians

   To convert to radian measure, I set up a proportion:
   $\frac{degree\ measure}{360°} = \frac{radian\ measure}{2\pi} \rightarrow \frac{12°}{360°} = \frac{x}{2\pi}$.
   I then cross multiplied to get: $12 \cdot 2\pi = 360 \cdot x$.
   I simplified to: $24\pi = 360x$.
   Then divided both sides by 360: $\frac{24\pi}{360} = \frac{360x}{360}$.
   Finally I reduced to get: $\frac{\pi}{15} = x$.

3. $\frac{\pi}{5}$ = 36°

   To convert to degree measure, I set up a proportion:
   $\frac{degree\ measure}{360°} = \frac{radian\ measure}{2\pi} \rightarrow \frac{x}{360°} = \frac{\frac{\pi}{5}}{2\pi}$.
   I then cross multiplied to get: $x \cdot 2\pi = \frac{\pi}{5} \cdot 360$
   I simplified to: $2\pi x = \frac{360\pi}{5} \rightarrow 2\pi x = 72\pi$.
   Then divided both sides by 2π: $\frac{2\pi x}{2\pi} = \frac{72\pi}{2\pi}$.
   Finally I reduced to get: x= 36°.

4. $\frac{3\pi}{8}$ = 67.5°

   To convert to degree measure, I set up a proportion:
   $\frac{degree\ measure}{360°} = \frac{radian\ measure}{2\pi} \rightarrow \frac{x}{360°} = \frac{\frac{3\pi}{8}}{2\pi}$.
   I then cross multiplied to get: $x \cdot 2\pi = \frac{3\pi}{8} \cdot 360$
   I simplified to: $2\pi x = \frac{1080\pi}{8} \rightarrow 2\pi x = 135\pi$.
   Then divided both sides by 2π: $\frac{2\pi x}{2\pi} = \frac{135\pi}{2\pi}$.
   Finally I reduced to get: x= 67.5°.

Additional Practice on Back →

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Additional Practice on Back →

For all conversions from degrees to radians or radians to degrees you will use the following:

$$\frac{angle\ measure\ in\ degrees}{360°} = \frac{angle\ measure\ in\ radians}{2\pi}$$

Write this out each time you use it. Show your work to get credit. Check your answers with those provided in the box below.

1) Convert 135° to radians

2) Convert $\frac{7\pi}{4}$ to degrees.

1) $\frac{3\pi}{4} radians$ 2) 315°

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