Mathematics 1613: Trigonometry Quiz #2

Problem 4: Explain what it means for an angle to be measured in radians.

~~A more accurate way to measure degrees~~ not more accurate, more natural

The arc length of an angle in standard position on the unit circle

Problem 5: Use the above definition to find the radian measure of 360°. Explain your reasoning.

$360° = 2\pi$ ✓

Arc length = circumference of entire circle

= circ. of unit circle

$2\pi r = 2\pi$

$r = 1$ ✓

Problem 6: Explain why converting from degrees to radians involves multiplying by $\frac{\pi}{180°}$:

$180° = \pi$ rad. One degree is one hundred and eightieth π radians

$1° = \frac{\pi}{180}$

Thus from degrees to radians you multiply degrees by $\frac{\pi}{180}$ ✓

Same vice versa but with $\frac{180°}{\pi}$

Problem 7: Convert between degrees and radians:

$390° \cdot \frac{\pi}{180} = \frac{13\pi}{6}$ ✓

$-\frac{7\pi}{3} \cdot \frac{180}{\pi} = -7 \cdot 60 = -420°$ ✓

$10 \cdot \frac{180}{\pi} = \frac{1800°}{\pi}$ ✓