Review of radians and unit-circle values

6 questions | 12 marks

Equivalent correct methods earn the corresponding marks.

1. Convert 210° to radians. [2 marks]

$210(\frac{\pi}{180}) = \frac{7\pi}{6}$.

Answer: $\frac{7\pi}{6}$.

2. Convert $\frac{5\pi}{4}$ radians to degrees. [2 marks]

$(\frac{5\pi}{4})(\frac{180}{\pi}) = 225$.

Answer: 225°.

3. Find $\sin(\frac{4\pi}{3})$ exactly. [2 marks]

Quadrant III gives negative sine; the reference angle is $\frac{\pi}{3}$.

Answer: $-\frac{\sqrt{3}}{2}$.

4. Find $\cos(-\frac{\pi}{3})$ exactly. [2 marks]

Cosine is even, so this equals $\cos(\frac{\pi}{3})$.

Answer: $\frac{1}{2}$.

5. Find the arc length for radius 8 m and angle $\frac{3\pi}{8}$. [2 marks]

$s = 8(\frac{3\pi}{8}) = 3\pi$.

Answer: 3π m.

6. Explain why tangent is undefined at $\frac{\pi}{2}$. [2 marks]

$\sin(\frac{\pi}{2}) = 1$, $\cos(\frac{\pi}{2}) = 0$; division by zero is undefined.

Answer: Its cosine denominator is zero.