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]

$210(\pi/180) = 7\pi/6$.

Answer: $7\pi/6$.

2. Convert $5\pi/4$ radians to degrees. [2 marks]

$(5\pi/4)(180/\pi) = 225$.

Answer: 225°.

3. Find $\sin(4\pi/3)$ exactly. [2 marks]

Quadrant III gives negative sine; the reference angle is $\pi/3$.

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

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

Cosine is even, so this equals $\cos(\pi/3)$.

Answer: $1/2$.

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

$s = 8(3\pi/8) = 3\pi$.

Answer: 3π m.

6. Explain why tangent is undefined at $\pi/2$. [2 marks]

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

Answer: Its cosine denominator is zero.