Arc length and sector area

6 questions | 18 marks

Equivalent correct methods earn the corresponding marks.

1. Find arc length for r=10 cm, θ=$\pi/5$. [3 marks]

$s = 10\pi/5$.

Answer: 2π cm

2. Find sector area for r=5 m, θ=1.2 rad. [3 marks]

$K = 25(1.2)/2 = 15$.

Answer: 15 m².

3. Find the exact arc for radius 8 cm and angle 135°. [3 marks]

$135^\circ = 3\pi/4$; multiply by 8.

Answer: 6π cm

4. A sector has radius 7 cm and arc 14 cm. Find angle and area. [3 marks]

$\theta = 14/7 = 2$; $K = 49(2)/2 = 49$.

Answer: 2 rad;49 cm².

5. Find the full perimeter of a sector r=4 cm, θ=$\pi/2$. [3 marks]

Arc is $4\pi/2 = 2\pi$; add both radii.

Answer: $8 + 2\pi$ cm

6. A 12 m² sector has radius 4 m. Find its angle in radians and degrees to one decimal place. [3 marks]

$12 = 8\theta$, so θ=1.5.

$1.5(180/\pi) = 85.9437\ldots$

Answer: 1.5 rad≈85.9°.