

Arc Length and Sector Area

Write the formulas in your own words — the structure of each formula is more important than the symbols. Add labeled diagrams in the sketch areas.

ARC AND SECTOR — what they are, with a labeled diagram

Arc: Definition (in your own words): Sector: Definition (in your own words):	Sketch
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THE FRACTION IDEA — the engine behind both formulas

A central angle of θ° is what fraction of the full circle? Fraction = _____
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ARC LENGTH FORMULA — and why it has that structure

Arc length L = Why the structure:

SECTOR AREA FORMULA — and why it has that structure

Sector area A = Why the structure

WHY THESE FORMULAS WORK FOR ANY CIRCLE — connection to Lesson 8.2

WORKED EXAMPLES — forward and reverse

Forward — given r and θ , find L and A

Circle with radius $r = 9$ and central angle $\theta = 80^\circ$.

Arc length =

Sector area =

Reverse — given L and θ , find r

Arc length $L = 5\pi$, central angle $\theta = 120^\circ$. Radius = ?

Work: