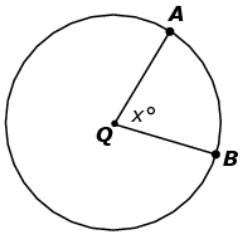
MAFS.912.G-C.2.5	Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.
Item Types	Editing Task Choice – May require choosing a step in a derivation. Equation Editor – May require creating numerical values, expressions, or equations. GRID – May require creating circles or completing a proof. Hot Text – May require dragging text to complete a proof or ordering steps in a derivation. Multiple Choice – May require selecting a value or an expression from a list. Multiselect – May require selecting responses. Open Response – May require explaining the validity of a proof.
Clarifications	Students will use similarity to derive the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure as the constant of proportionality. Students will apply similarity to solve problems that involve the length of the arc intercepted by an angle and the radius of a circle. Students will derive the formula for the area of a sector. Students will use the formula for the area of a sector to solve problems.
Assessment Limit	The center of dilation must be given.
Stimulus Attribute	Items may be set in a real-world or mathematical context.
Response Attribute	Items may require the student to use or choose the correct unit of measure.
Calculator	Neutral

Sample Item	Item Type
	Equation Editor

Circle Q has a radius r with a central angle $\angle AQB$ that measures $x°$, as shown.



A. Create an expression using r and x that can be used to find the length of $\overset{\frown}{AB}$, in degrees.

B. Then, create an expression that could be used to find the length of $\overset{\frown}{AB}$, in degrees, if circle Q were dilated by a scale factor of 3.7.

A.

B.