Topic	Notes	Examples
Def of Coterminal Angles	Angles of different measure that have the same initial side and the same terminal side.	
How to Find Coterminal Angles	Add or subtract 2π until you find the angle you're looking for.	**Find the smallest positive coterminal angle of $\frac{-5\pi}{3}$.** Because I want a positive angle, I am going to add 2π. $\frac{-5\pi}{3}+2\pi=\frac{-5\pi}{3}+\frac{6\pi}{3}=\boldsymbol{\frac{\pi}{3}}$ **Find the smallest negative coterminal angle of $\frac{19\pi}{4}$.** Because I want a negative angle, I am going to subtract 2π. $\frac{19\pi}{4}-2\pi=\frac{19\pi}{4}-\frac{8\pi}{4}=\frac{11\pi}{4}$ Keep subtracting 2π until you get a negative angle. $\frac{11\pi}{4}-2\pi=\frac{3\pi}{4}$ $\frac{3\pi}{4}-2\pi=\boldsymbol{\frac{-5\pi}{4}}$
Def of Complementary Angles ***Def of Supplementary Angles***	Angles that add to $\frac{\pi}{2}$. Angles that add to π.	Note: These are the same as Geometry definitions, just written in radians rather than degrees.
Examples	**Find the complement of $\frac{3\pi}{8}$.** $a+\frac{3\pi}{8}=\frac{\pi}{2}$ $a=\frac{\pi}{2}-\frac{3\pi}{8}=\frac{4\pi}{8}-\frac{3\pi}{8}=\boldsymbol{\frac{\pi}{2}}$	**Find the supplement of $\frac{3\pi}{7}$.** $a+\frac{3\pi}{7}=\pi$ $a=\pi-\frac{3\pi}{7}=\frac{7\pi}{7}-\frac{3\pi}{7}=\boldsymbol{\frac{4\pi}{7}}$

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Arc Length
Area of a Sector
Angular & Liner Speed

Topic	Notes	Examples
How to Find Arc Length	Two ways: 1) $L_{arc} = r\theta$ 2) $L_{arc} = \frac{\theta}{2\pi} \cdot C_{circle}$ ***Note: θ must be in radians!***	**Find the arc length A circle has a radius of 7 cm. Find the length of the arc intercepted by the angle 135°.** 1) Convert 135° to radians. $135° \cdot \frac{\pi}{180°} = \frac{3\pi}{4}$ 2) Use either formula. $L_{arc} = 7\left(\frac{3\pi}{4}\right) = \boldsymbol{\frac{21\pi}{4}}$ $L_{arc} = \frac{3\pi/4}{2\pi} \cdot 14\pi = \left(\frac{3\pi}{4}\right)7 = \boldsymbol{\frac{21\pi}{4}}$
How to Find Area of a Sector	Two ways: 1) $A_{sector} = \frac{1}{2}r^2\theta$ 2) $A_{sector} = \frac{\theta}{2\pi} \cdot A_{circle}$ ***Note: θ must be in radians!***	**A sprinkler on a golf course fairway sprays water over a distance of 70 feet and rotates through an angle of 120°. Find the area of the fairway watered by the sprinkler.** Note: This is asking you to find the area of a sector. 1) Convert 120° to radians. $120° \cdot \frac{\pi}{180°} = \frac{2\pi}{3}$ 2) Use either formula. $A_{sector} = \frac{1}{2}(70)^2\left(\frac{2\pi}{3}\right) = \frac{4900\pi}{3}$ $\approx \boldsymbol{5131.27\ sq\ ft}$ $A_{sector} = \frac{2\pi/3}{2\pi} \cdot \pi(70)^2$ $= \frac{1}{3}(4900\pi) = \frac{4900\pi}{3}$ $\approx \boldsymbol{5131.27\ sq\ ft}$
How to Find Angular Speed	$Angular\ Speed = \frac{central\ angle}{time}$ $\omega = \frac{\theta}{t}$	
How to Find Linear Speed	$Linear\ Speed = \frac{arc\ length}{time}$ $v = \frac{s}{t}$	