

Section 5.1: Angles in Standard Position

MATH 130 · Monday, November 2 · ALEKS 5.1/5.2 and Quiz 10 on Wednesday, November 11

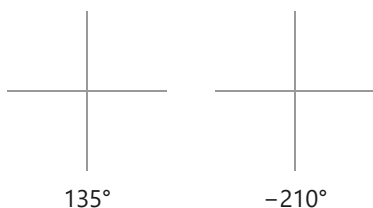
Name _____

An angle in **standard position** starts on the positive x-axis (initial side). Positive angles turn counterclockwise; negative angles turn clockwise. Two angles are **coterminal** when their terminal sides match: add or subtract 360° (or 2π) as many times as needed.

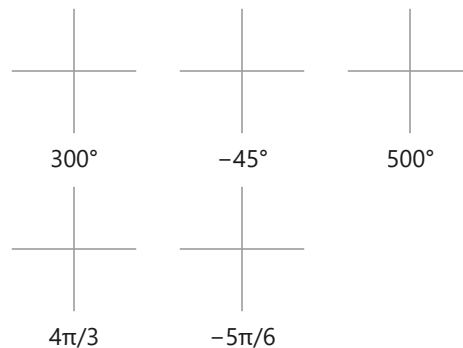
1 · Sketch the angle and name its quadrant

Draw the initial side, turn the right direction, mark the terminal side. For angles beyond one turn, subtract 360° first.

Model



1–5



2 · Coterminal angles

Degrees: $\pm 360^\circ$ · Radians: $\pm 2\pi$ (write 2π with the same denominator, such as $12\pi/6$)

- Model**
- (a) Find the coterminal angle between 0° and 360° for 410° .
 - (b) Find one positive and one negative angle coterminal with -130° .
 - (c) Find the coterminal angle between 0 and 2π for $17\pi/6$.

- 6–9**
- 6. Between 0° and 360° : 795°
 - 7. Between 0° and 360° : -250°
 - 8. Between 0 and 2π : $11\pi/4$
 - 9. Between 0 and 2π : $-7\pi/6$

3 · Arc length

$s = r\theta$ with θ in radians. Given degrees, multiply by $\pi/180$ first. Give an exact answer and a decimal to two places.

Model (a) $r = 10$, $\theta = 3\pi/5$
(b) $r = 6$, $\theta = 75^\circ$

10–11 10. $r = 14$, $\theta = \pi/7$
11. $r = 9$, $\theta = 160^\circ$

Check yourself: 0° – 90° is QI, 90° – 180° QII, 180° – 270° QIII, 270° – 360° QIV. In radians the boundaries are $\pi/2$, π and $3\pi/2$. An angle that lands exactly on an axis is a quadrantal angle and has no quadrant.