

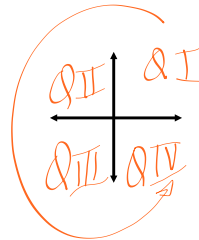
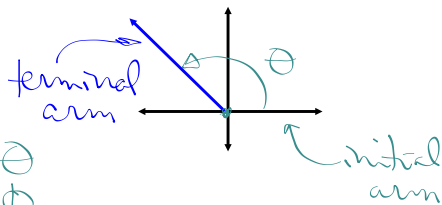
2.1 Angles in Standard Position

Where is trig used?

Definitions (pg 77-78)

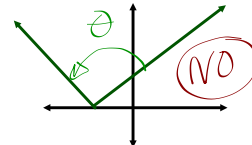
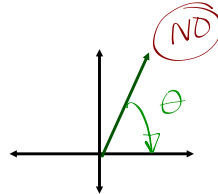
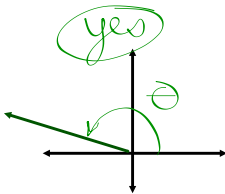
initial arm: The arm of an angle in standard position that lies on the positive x-axis.

terminal arm: the arm of an angle in standard position that meets the initial arm at the origin to form an angle

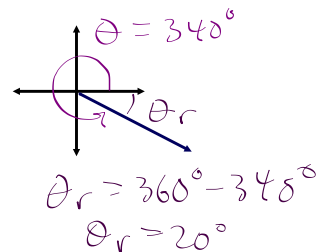
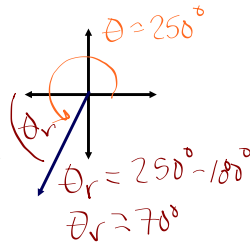
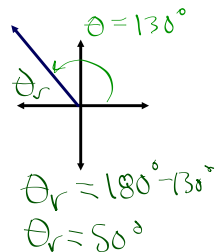
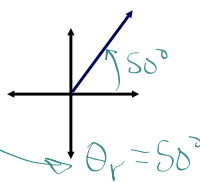


θ
 ϕ
 α
 β

angle in standard position: when the initial arm is on the (+) x-axis and the vertex is at the origin

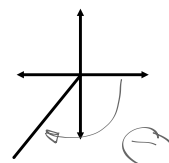
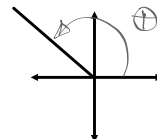


Reference angle: the acute angle between the x-axis and the terminal arm

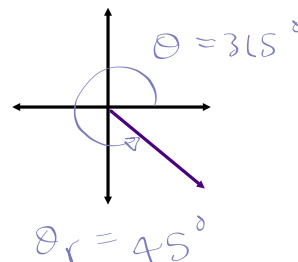
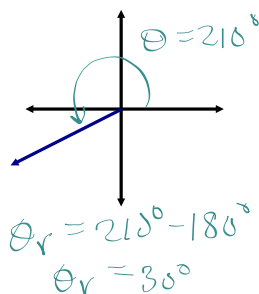
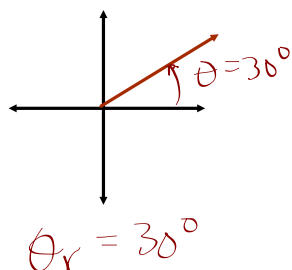


Note:

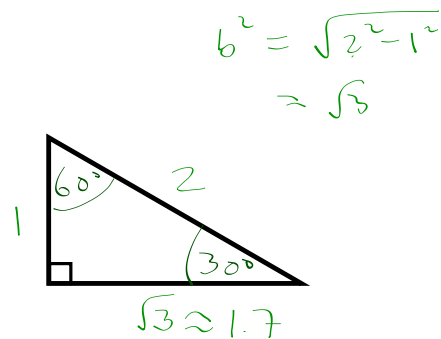
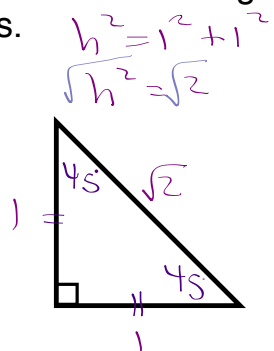
- 1) each reference angle is associated to 4 angles in standard position
- 2) counter-clockwise is positive, clockwise is negative



Ex. Sketch the following angles in standard position: 30° , 210° and 315° .
State the reference angles for each.



Special angles: 30° , 45° and 60° are common angles in trig. You can determine the exact trig ratios for these angles by referring to these two triangles.



	30°	45°	60°
sin	$\frac{1}{2} = 0.5$	$\frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2} \approx 0.707$	$\frac{\sqrt{3}}{2}$
cos	$\frac{\sqrt{3}}{2} \approx 0.866$	$\frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$	$\frac{1}{2}$
tan	$\frac{1}{\sqrt{3}} \approx 0.577$	1	$\frac{\sqrt{3}}{1} = \sqrt{3}$

SOH
CAH
TOA

$\frac{1}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{2}$