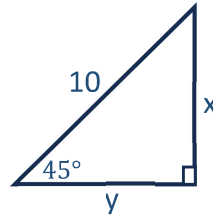
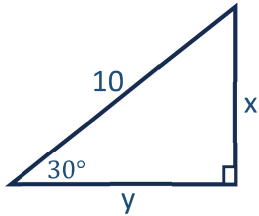


8.3 The Unit Circle

Warm-Up

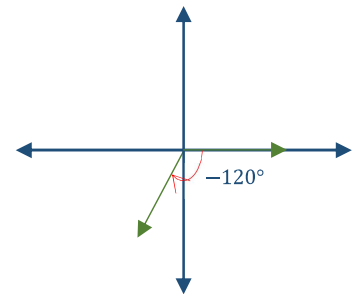
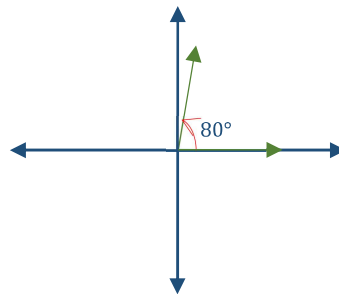
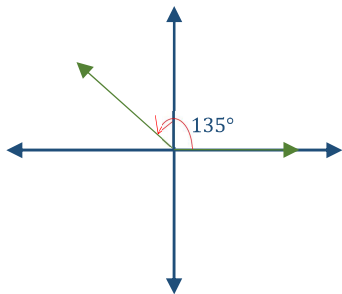
Solve for x and y .



Main Topic

The Unit Circle

Pay attention to the sketched **angles in standard position**.



Write your observations.

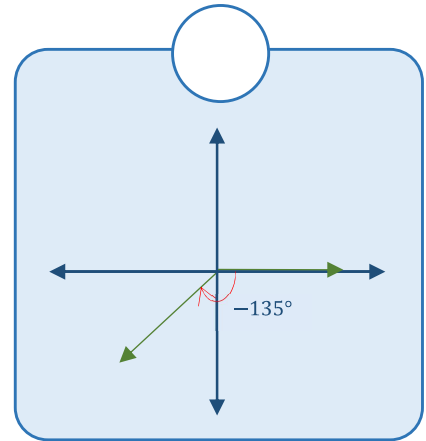
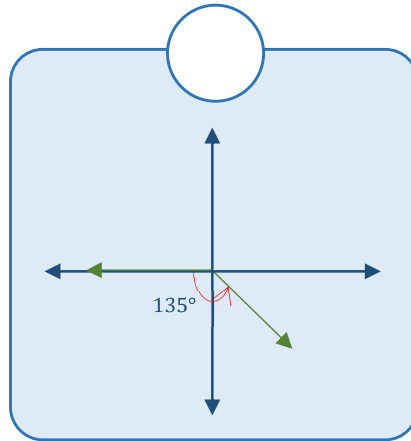
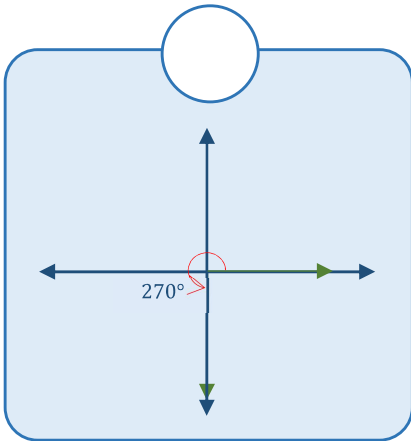


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Standard Position

An angle in **standard position** is when its vertex is at the origin and one of its rays is on the positive x-axis.

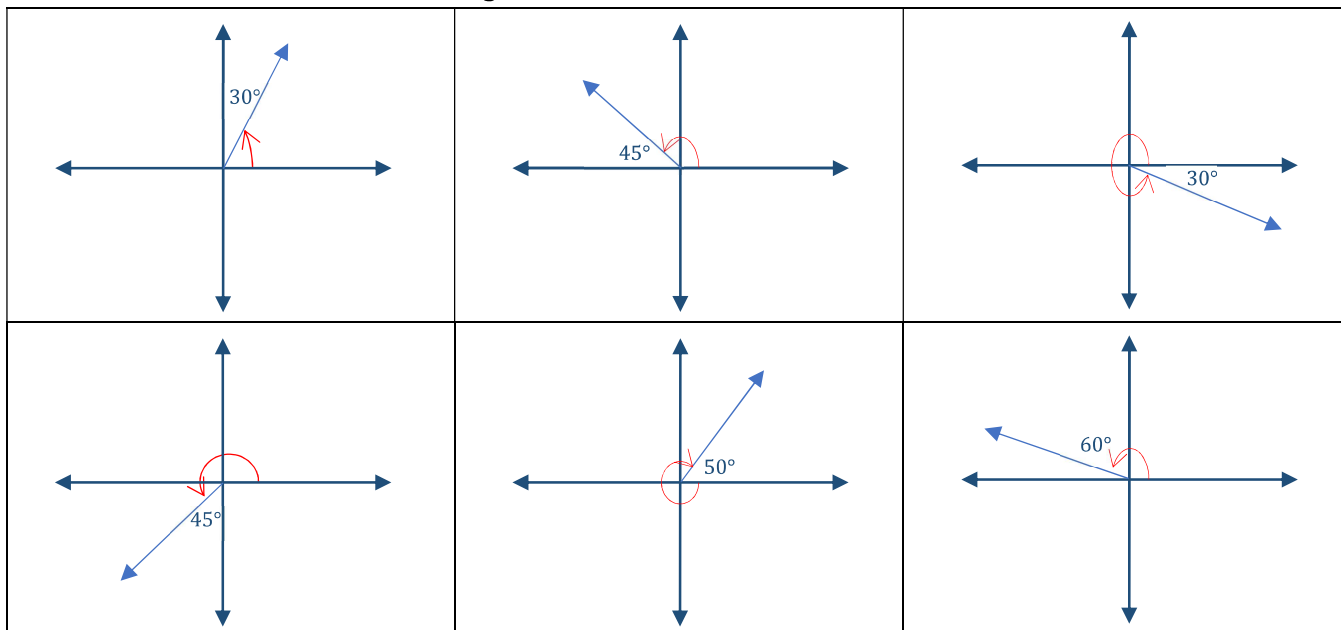
Write **“Yes”** in the circle if the angle is in standard position. Otherwise, write **“No”**.



Sketch the given angles.

| | | |
|-------------|--------------|-------------|
| 300° | -30° | 125° |
| 405° | -135° | 225° |

Find the measure of the sketched angles.



Unit Circle Coordinates (30°)

- Draw a circle with 1 unit radius.
- Sketch a 30° angle in standard position.
- Label the intersection between the rotating side of the angle and the circle with P.
- From P, draw a line perpendicular to the x-axis.
- Pay attention to the features of the constructed right triangle.
- Calculate the lengths of the right triangle.

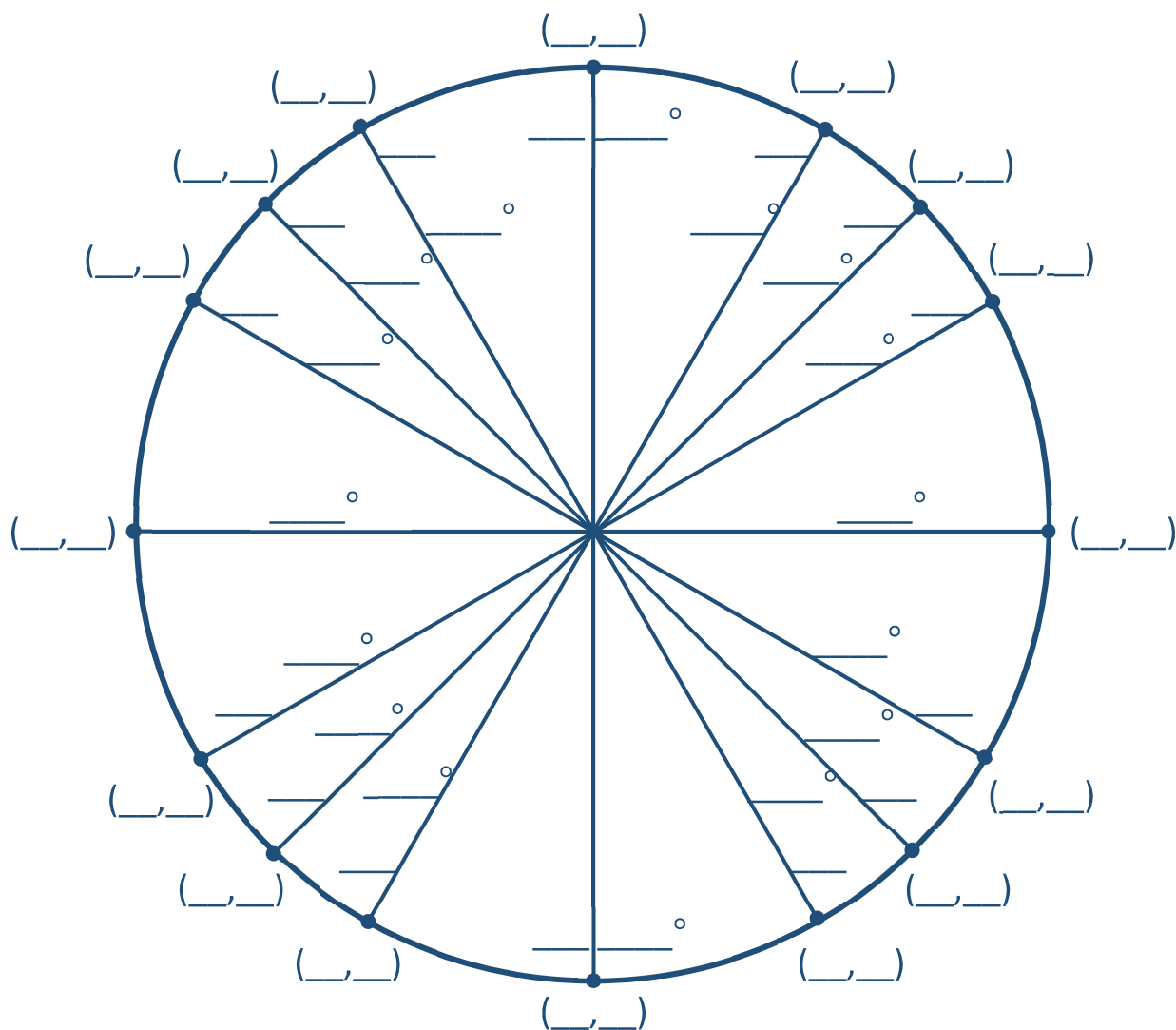
Unit Circle Coordinates (60°)

- Draw a circle with 1 unit radius.
- Sketch a 60° angle in standard position.
- Label the intersection between the rotating side of the angle and the circle with P.
- From P, draw a line perpendicular to the x-axis.
- Pay attention to the features of the constructed right triangle.
- Calculate the lengths of the right triangle.

Unit Circle Coordinates (45°)

- Draw a circle with 1 unit radius.
- Sketch a 45° angle in standard position.
- Label the intersection between the rotating side of the angle and the circle with P.
- From P, draw a line perpendicular to the x-axis.
- Pay attention to the features of the constructed right triangle.
- Calculate the lengths of the right triangle.

Coordinates of the Unit Circle

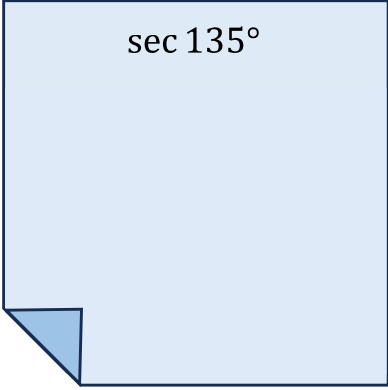


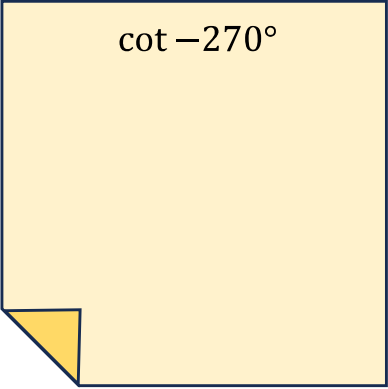
Find the value.

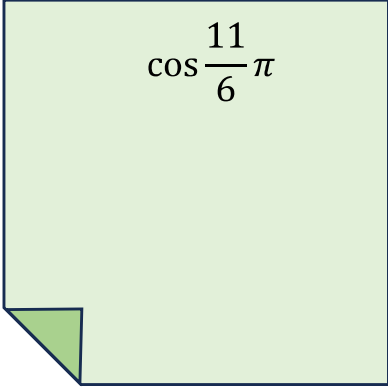
| | | | |
|------------------|-----------------------------|-----------------------------|-------------------|
| $\sin 60^\circ$ | $\cos -\frac{\pi}{4}^\circ$ | $\tan 225^\circ$ | $\sec -30^\circ$ |
| $\sec 330^\circ$ | $\cot -360^\circ$ | $\sin \frac{5\pi}{6}^\circ$ | $\cos -270^\circ$ |

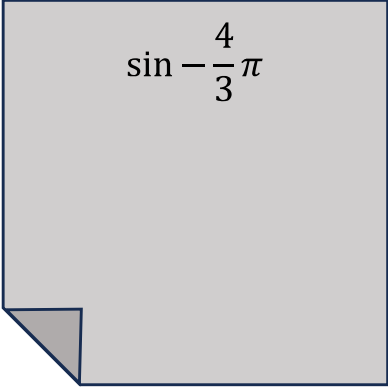
Unit Circle Stickies Gallery

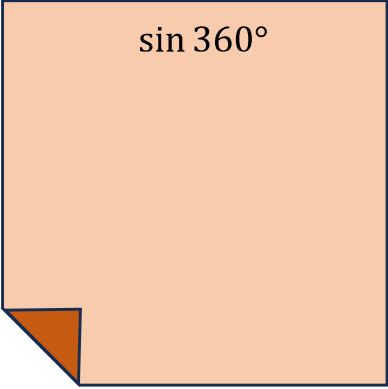
Copy each question on a sticky note, show complete work, and circle the final answer.
Post your work next to the questions across the classroom.

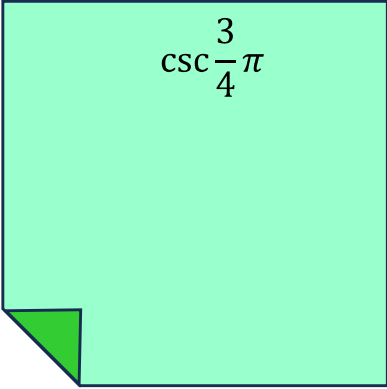

$$\sec 135^\circ$$


$$\cot -270^\circ$$


$$\cos \frac{11}{6}\pi$$


$$\sin -\frac{4}{3}\pi$$


$$\sin 360^\circ$$


$$\csc \frac{3}{4}\pi$$

End-of-Course Prep