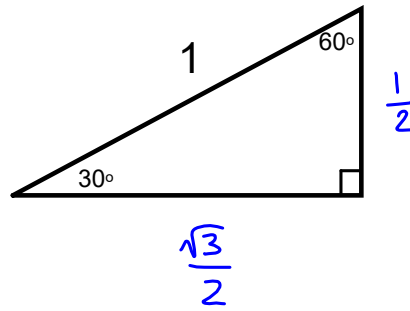
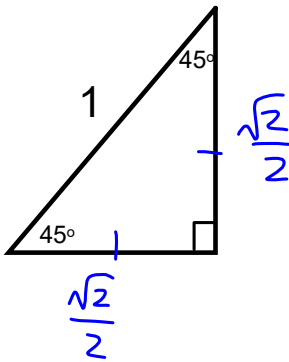


WARM - UPS

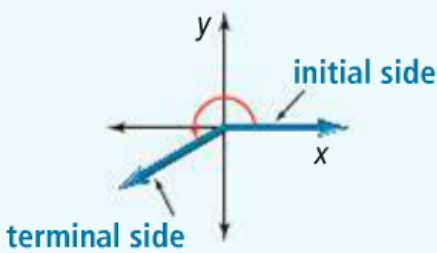
Solve for each missing side of the following special right triangles.



Apr 2-8:00 AM

13.2 Angles and the Unit Circle

Standard Position



An angle is determined by two rays. The degree measure of an angle is described by the amount and direction of rotation from the **initial side** (*where the angle starts*) along the positive x-axis to the **terminal side** (*where the angle ends*). A counterclockwise rotation is associated with positive angle measure, and a clockwise rotation is associated with negative angle measure.



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Ex. Sketch the following angles in standard position.

120° 390° -135°

90° 180° -90°

180° 360° -180°

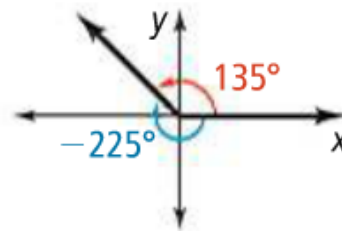
270°

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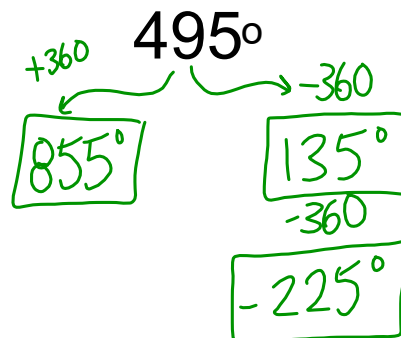
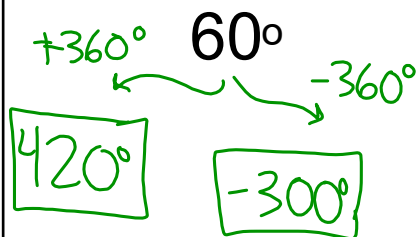
Coterminal Angles:

When two angles in standard position have the same terminal sides, they are called **coterminal angles**.

Ex. Angles of **135°** and **-225°** are coterminal.



Ex. Find one angle with positive measure and one angle with negative measure that are **coterminal** with each given angle.

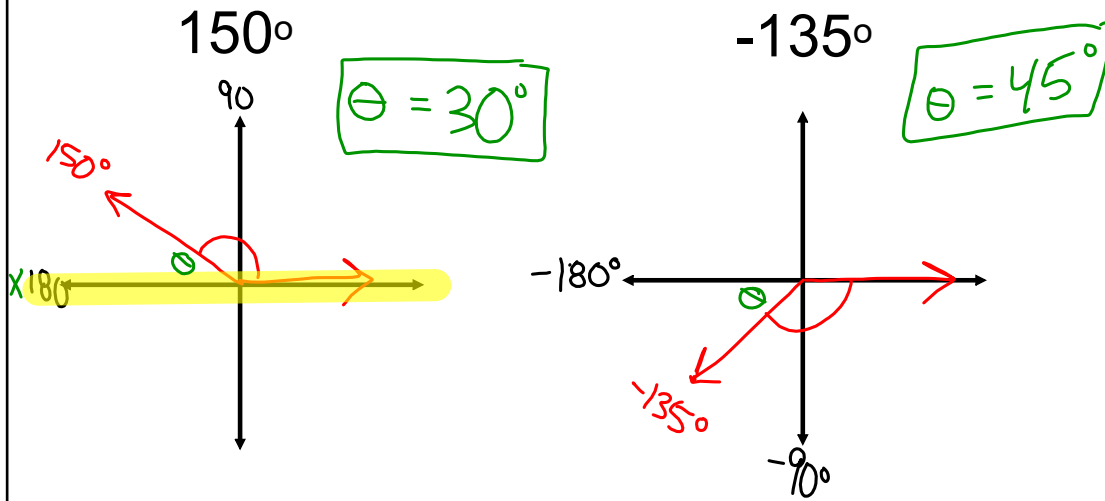


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Reference Angles

Easy way to see 'em: "How far is the terminal side from the NEAREST x-axis?"

Ex. Sketch each angle. Then find its reference angle:



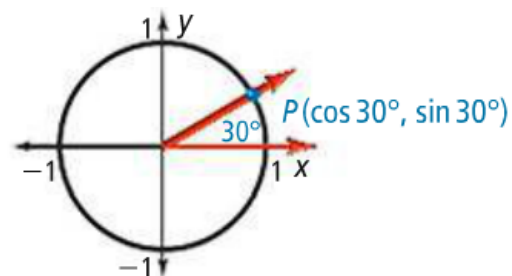
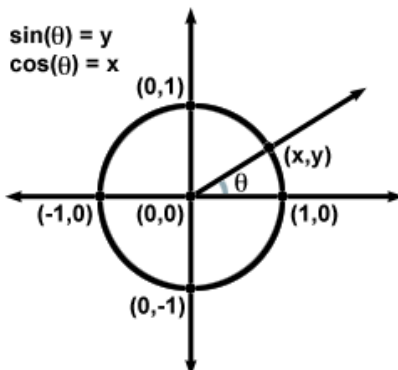
Apr 2-9:46 AM

The Unit Circle

In a 360° angle, a point 1 unit from the origin on the terminal ray makes one full rotation about the origin. The resulting circle is a unit circle. The **unit circle** has a radius of 1 unit and its center at the origin of the coordinate plane. Any right triangle formed by the radius of the unit circle has a hypotenuse of 1. Points on the unit circle are related to periodic functions.

You can use the symbol θ for the measure of an angle in standard position.

Ex. When θ is 30°



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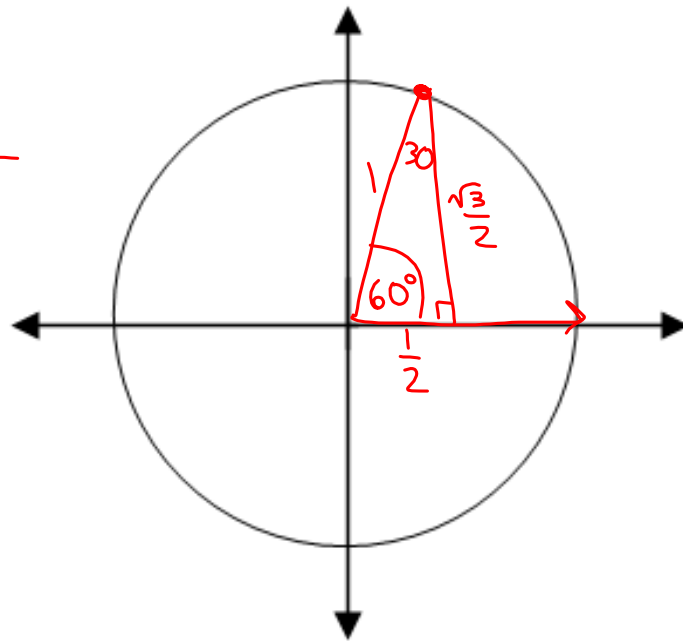
What is the cosine and sine of this angle?

Ex1. 60°

$$\sin(60^\circ) = \frac{\sqrt{3}}{2}$$

$$\sin(60) = \frac{\sqrt{3}}{2}$$

$$\cos(60) = \frac{1}{2}$$



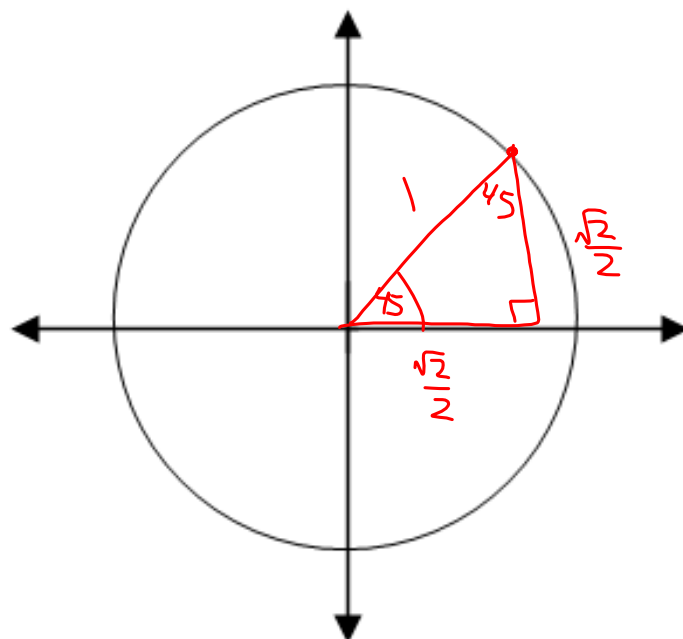
Apr 1-8:56 AM

What is the cosine and sine of this angle?

Ex2. 45°

$$\sin(45) = \frac{\sqrt{2}}{2}$$

$$\cos(45) = \frac{\sqrt{2}}{2}$$



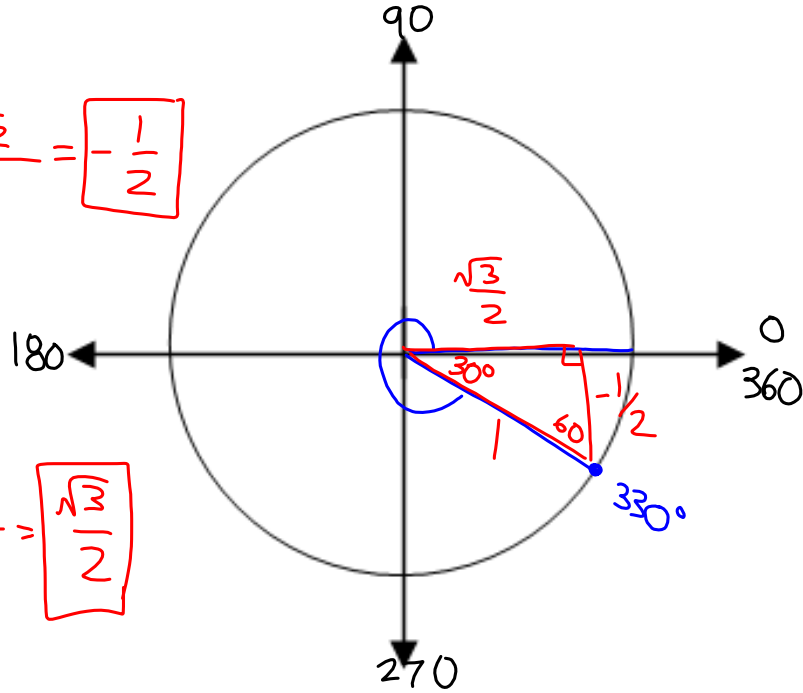
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What is the cosine and sine of this angle?

Ex3. 330°

$$\sin(330) = \frac{-\frac{1}{2}}{1} = \boxed{-\frac{1}{2}}$$

$$\cos(330) = \frac{\frac{\sqrt{3}}{2}}{1} = \boxed{\frac{\sqrt{3}}{2}}$$



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What is the cosine and sine, and tangent of this angle?

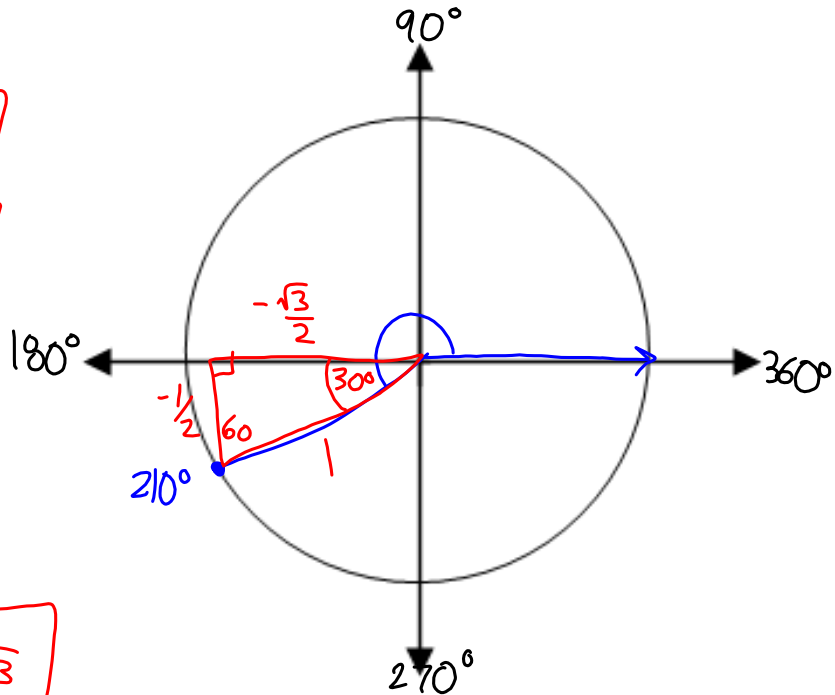
Ex4. 210°

$$\sin(210) = -\frac{1}{2}$$

$$\cos(210) = -\frac{\sqrt{3}}{2}$$

$$\tan(210) = \frac{-\frac{1}{2}}{-\frac{\sqrt{3}}{2}}$$

$$\tan(210) = \frac{\sqrt{3}}{3}$$



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13-2 HW: p.840

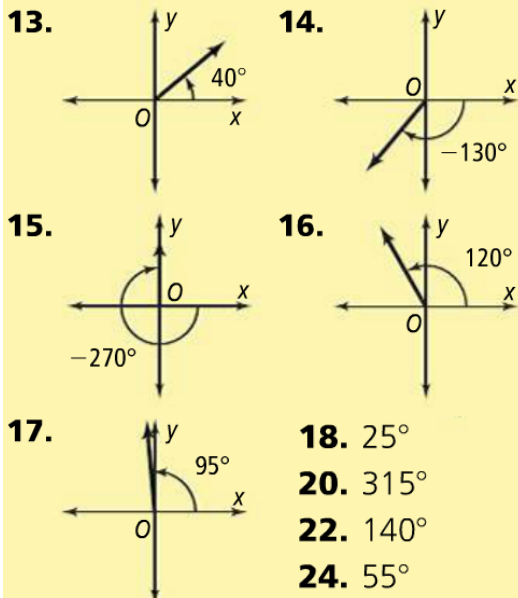
#'s: 13 - 33 all, 53 - 57 all

#'s 26-33, 53-57 no decimal answers, just exact.

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Answers to 13.2: p. 840: 13 - 33 all, 53 - 57 all

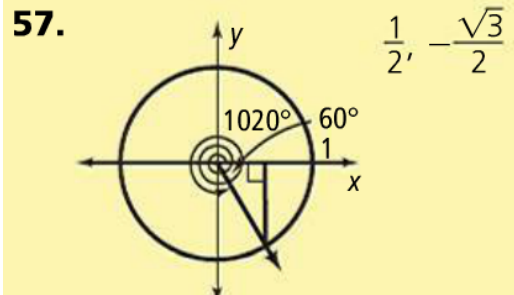
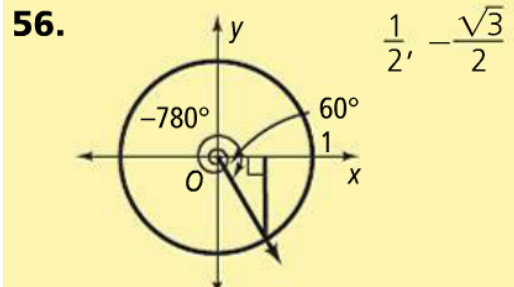
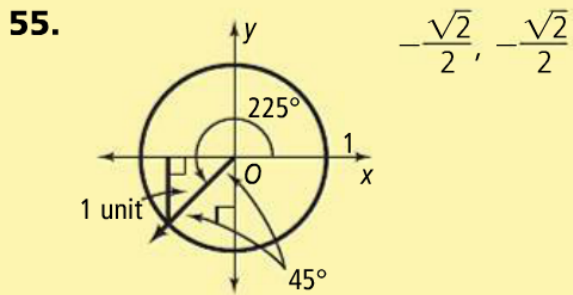
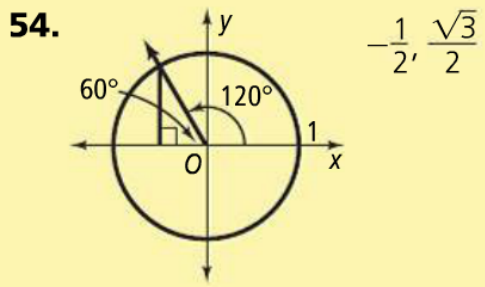
(cos, sin)



- 18. 25°
- 19. 215°
- 20. 315°
- 21. 4°
- 22. 140°
- 23. 150°
- 24. 55°
- 25. 180°

- 26. $\frac{1}{2}, -\frac{\sqrt{3}}{2}$
- 27. $-\frac{\sqrt{2}}{2}, \frac{\sqrt{2}}{2}$
- 28. $\frac{\sqrt{3}}{2}, -\frac{1}{2}$
- 29. $-\frac{1}{2}, \frac{\sqrt{3}}{2}$
- 30. $\frac{\sqrt{3}}{2}, \frac{1}{2}$
- 31. $\frac{\sqrt{2}}{2}, -\frac{\sqrt{2}}{2}$
- 32. $\frac{\sqrt{3}}{2}, -\frac{1}{2}$
- 33. $-\frac{\sqrt{2}}{2}, \frac{\sqrt{2}}{2}$

Apr 6-8:03 AM



Apr 6-8:07 AM