Find exact solutions.

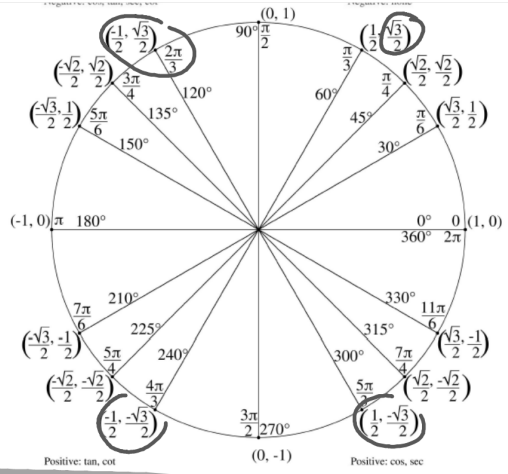
$4\sin^2\theta - 1 = 2$

$+1 \quad +1$

$\frac{4\sin^2\theta}{4} = \frac{3}{4}$

$\sqrt{\sin^2\theta} = \sqrt{\frac{3}{4}}$

$\sin\theta = \pm\frac{\sqrt{3}}{2}$



$\theta = 60°, 120°, 240°, 300°$

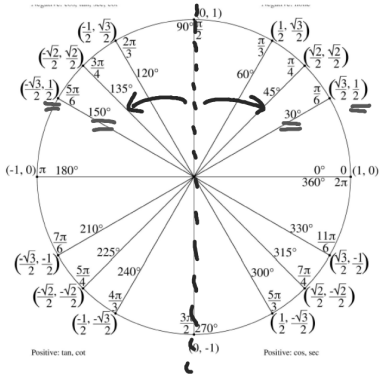
Using the unit circle find two angles that have the same Sine value.

What is the relationship between these two angles?

- They are reflections over the y-axis
- They are Supplementary:

  $\sin\theta = \sin(180° - \theta)$

  $\sin(\pi - \theta)$

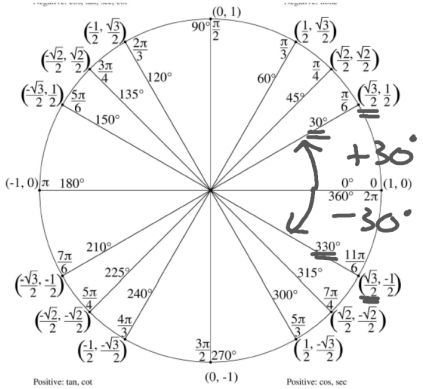


Using the unit circle find two angles that have the same Cosine value.

What is the relationship between these two angles?

- They are reflections over the x-axis
- They are opposites of each other

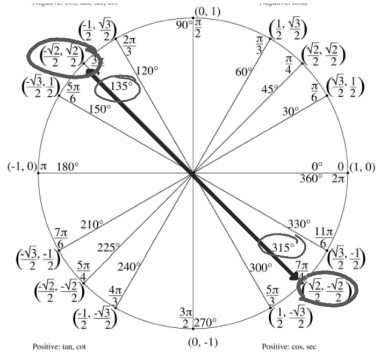
  $\cos\theta = \cos(-\theta)$



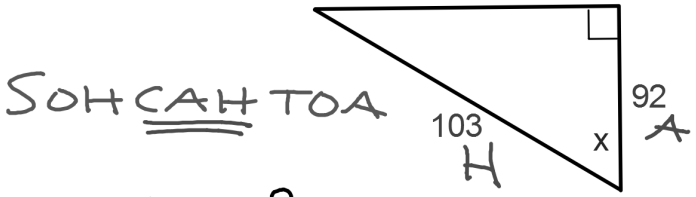
Using the unit circle find two angles that have the same Tangent value.

What is the relationship between these two angles?

- The angles are half a circle away from each other
- $\tan\theta = \tan(\theta \pm 180°) = \tan(\theta \pm \pi)$



Find the value of x to the nearest tenth of a degree.



$\cos X = \frac{92}{103}$

$X = \cos^{-1}\left(\frac{92}{103}\right) = 26.7°$

Find all values of θ for $0 \le \theta \le 360°$ that makes this equation true. Round to the nearest hundredth.

$5\tan\theta - 6 = 1$

$+6 \quad +6$

$\frac{5\tan\theta}{5} = \frac{7}{5}$

$\tan\theta = 1.4$

$\theta = \tan^{-1}(1.4)$

$\theta = 54.46°$

$\& \ \theta + 180$

$54.46 + 180$

$234.46°$

Find all values of θ for $0 \le \theta \le 360°$ that makes this equation true. Round to the nearest hundredth.

$10\sin\theta + 2 = 6$

$-2 \quad -2$

$\frac{10\sin\theta}{10} = \frac{4}{10}$

$\sin\theta = .4$

$\theta = \sin^{-1}(.4)$

$= 23.58°$

$\& \ 180 - \theta$

$180 - 23.58$

$156.42°$

Find all values of θ for $0 \le \theta \le 360°$ that makes this equation true. Round to the nearest hundredth.

$8\cos\theta + 4 = 3$

$-4 \quad -4$

$\frac{8\cos\theta}{8} = \frac{-1}{8}$

$\cos\theta = -1/8$

$\theta = \cos^{-1}(-1/8)$

$= 97.18°$

$\& \ -\theta$

$-97.18°$

$+360$

$262.82°$

Find all values of θ for $0 \le \theta \le 2\pi$ that makes this equation true. Round to the nearest hundredth.

$8\sin\theta + 5 = 3$

$-5 \quad -5$

$\frac{8\sin\theta}{8} = \frac{-2}{8}$

$\sin\theta = -.25$

$\sin^{-1}(-.25) = -.25$

$+2\pi$

6.03

& $\pi - \theta$

$= \pi - -.25$

$= 3.39$

Find all values of θ for $0 \le \theta \le 2\pi$ that makes this equation true. Round to the nearest hundredth.

$-2\cos\theta - 1.5 = .25$

$+1.5 \quad 1.5$

$\frac{-2\cos\theta}{-2} = \frac{1.75}{-2}$

$\cos\theta = -.875$

$\theta = \cos^{-1}(-.875)$

$= 2.64$

& $-\theta$

-2.64

$+2\pi$

3.65

Find all values of θ for $0 \le \theta \le 2\pi$ that makes this equation true. Round to the nearest hundredth.

$10\tan\theta + 13 = 52$

$-13 \quad -13$

$\frac{10\tan\theta}{10} = \frac{39}{10}$

$\tan\theta = 3.9$

$\theta = \tan^{-1}(3.9) = 1.32$

& $\theta + \pi$

$= 1.32 + \pi$

$= 4.46$

Find all values of θ for $0 \le \theta \le 2\pi$ that makes this equation true. Round to the nearest hundredth.

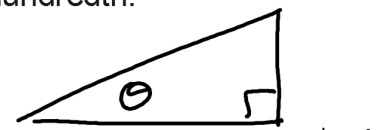
$3\cos\theta + 2 = 11$

$-2 \quad -2$

$\frac{3\cos\theta}{3} = \frac{9}{3}$

$\cos\theta = 3$

NO SOL



$\cos\theta = \frac{\text{ADJ LEG}}{\text{HYP}}$

this ratio can't be bigger than 1

You can now finish Hwk #27 Sec 14-2

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Due tomorrow

Problems:

17-19, 22, 25 Use Unit Circle for exact answers.

20, 21, 23 Round to nearest hundredth.