

Warm up

State the exact value (ratio) of the trig function without a calculator.

1. $\cos 30^\circ$ $\frac{\sqrt{3}}{2}$

2. $\sin \frac{\pi}{6}$ $\frac{1}{2}$

3. $\tan 45^\circ$ 1

4. $\cos \frac{\pi}{3}$ $\frac{1}{2}$

What quadrant am I in?

5. 272° 4

6. $\frac{4\pi}{7}$ 2

7. 4.3 3

8. -367° 4

9. $-\frac{11\pi}{6}$ 1

10. -1.6 3

Jan 7-3:52 PM

GO COUGARS!



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Homework Questions

In Exercises 3–6, determine the quadrant in which each angle lies. (The angle measure is given in radians.)

3. (a) $\frac{7\pi}{4}$ (b) $\frac{11\pi}{4}$ 4. (a) $-\frac{5\pi}{12}$ (b) $-\frac{13\pi}{9}$

5. (a) -1 (b) -2 6. (a) 3.5 (b) 2.25

In Exercises 7–10, sketch each angle in standard position.

7. (a) $\frac{3\pi}{4}$ (b) $\frac{4\pi}{3}$ 8. (a) $-\frac{7\pi}{4}$ (b) $-\frac{5\pi}{2}$

9. (a) $\frac{11\pi}{6}$ (b) $\frac{2\pi}{3}$ 10. (a) 4 (b) -3

In Exercises 23–26, determine the quadrant in which each angle lies.

23. (a) 150° (b) 282°

24. (a) 87.9° (b) 8.5°

25. (a) $-132^\circ 50'$ (b) $-336^\circ 30'$

26. (a) -245.25° (b) -12.35°

In Exercises 27–30, sketch each angle in standard position.

27. (a) 30° (b) 150° 28. (a) -270° (b) -120°

29. (a) 405° (b) 780° 30. (a) -450° (b) -600°

Feb 2-9:51 PM

4.1 Day 3-Radian and Degree Measure

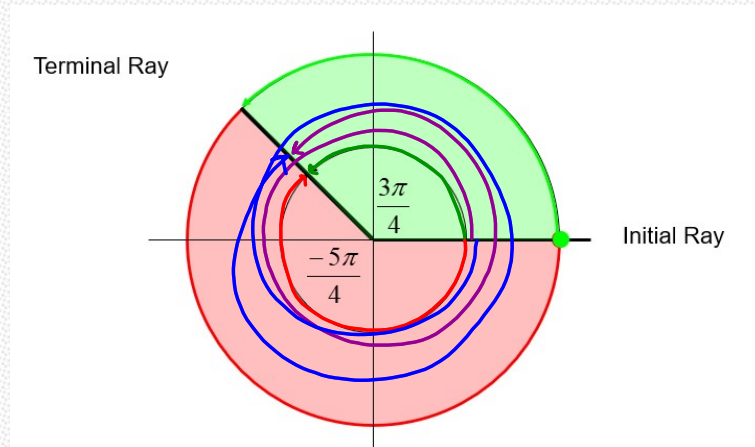
- Coterminal Angles
- Complementary and Supplementary Angles
- Conversions
- DMS with and without Calculator

Nov 21-9:17 AM

Coterminal Angles: Angles that share initial and terminal sides

COTA +

COTA -




How can you find coterminal angles?

$$\pm 360^\circ \quad \pm 2\pi \quad \pm 6.28 \text{ rad}$$

Nov 21-9:19 AM

Find one positive and one negative coterminal angle for:

$$90^\circ$$


$$90 + 360 = 450^\circ$$

$$90 - 360 = -270^\circ$$

$$\frac{\pi}{2}$$


$$\frac{\pi}{2} + 2\pi$$

$$\frac{\pi}{2} + \frac{4\pi}{2} = \frac{5\pi}{2}$$

$$\frac{\pi}{2} - 2\pi$$

$$\frac{\pi}{2} - \frac{4\pi}{2} = -\frac{3\pi}{2}$$

Nov 21-9:21 AM

Find one positive and one negative coterminal angle for:

$$437^\circ$$

$$+ \text{COT}A \quad 437 + 360 = 797$$

$$+ \text{COT}A \quad 437 - 360 = 77 \quad ???$$

$$- \text{COT}A \quad 77 - 360 = -283$$

$$-52^\circ + \text{COT}A \quad 308$$

$$- \text{COT}A \quad -412$$

$$\frac{2\pi}{7}$$

$$7$$

$$+ \text{COT}A \quad \frac{2\pi}{7} + 2\pi$$

$$\frac{2\pi}{7} + \frac{14\pi}{7} = \frac{16\pi}{7}$$

$$- \text{COT}A \quad \frac{2\pi}{7} - \frac{14\pi}{7} = -\frac{12\pi}{7}$$

$$-\frac{11\pi}{5}$$

$$+ \text{COT}A$$

$$\frac{9\pi}{5}$$

$$- \text{COT}A$$

$$-\frac{21\pi}{5}$$

$$- \text{COT}A$$

$$-\frac{\pi}{5}$$

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Complementary Angles: Two positive angles whose sum is or or

Supplementary Angles: Two positive angles whose sum is or or

Give the complement and supplement for the following:

$$57^\circ$$

$$57 + C = 90$$

$$C = 33$$

$$57 + S = 180$$

$$S = 123$$

$$100^\circ \quad \text{no comp} \\ S = 80$$

$$\frac{2\pi}{9}$$

$$\frac{2\pi}{9} + C = \frac{\pi}{2}$$

$$C = \frac{9\pi}{18} - \frac{4\pi}{18} \\ = \frac{5\pi}{18}$$

$$\frac{2\pi}{9} + S = \pi$$

$$S = \frac{7\pi}{9}$$

$$\frac{5\pi}{7}$$

$$\text{no comp} \\ S = 24$$

$$1.45$$

$$1.45 + C = 1.57$$

$$C = .12$$

$$1.45 + S = 3.14$$

$$S = 1.69$$

Nov 21-9:26 AM

Converting Degrees \leftrightarrow Radians

Recall $180^\circ = \pi$, $\therefore \frac{\pi}{180^\circ}$ Converts degrees to Radians

$$25^\circ \cdot \frac{\pi}{180^\circ} = \frac{25\pi}{180} = \frac{5\pi}{36}$$

$$\frac{180^\circ}{\pi}$$

Converts Radians to degrees

$$\frac{5\pi}{18} \cdot \frac{180^\circ}{\pi} = 50^\circ$$

Nov 21-9:39 AM

Converting Between Forms

Degrees to Radians: Multiply by 

$$1. 225^\circ \cdot \frac{\pi}{180} = \frac{5\pi}{4}$$

$$2. 58^\circ$$

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Converting Between Forms

Radians to Degrees Multiply by 

$$1. \frac{5\pi}{3}$$

$$2. -\frac{3\pi}{8} \cdot \frac{180}{\pi} = -\frac{135}{2}$$

$$3. 2.45$$

Nov 21-9:39 AM

Degrees, Minutes, Seconds

There are two basic forms for expressing degrees:

1. **Decimal Degrees** (DD)
2. **Degree-Minute-Second** (DMS)

$$1 \text{ degree} = 60 \text{ minutes} \qquad 1^\circ = 60'$$

$$1 \text{ minute} = 60 \text{ seconds} \qquad 1' = 60''$$

$$1 \text{ degree} = 3600 \text{ seconds} \qquad 1^\circ = 3600''$$

Nov 21-9:44 AM

Degrees, Minutes, Seconds on Calculator

Convert 39.25° to DMS.

Convert $185^\circ 13' 42''$ decimal form.

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HOMework



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11-19 odd

31-45 odd (no part b)

49-70 by threes

Feb 2-9:51 PM