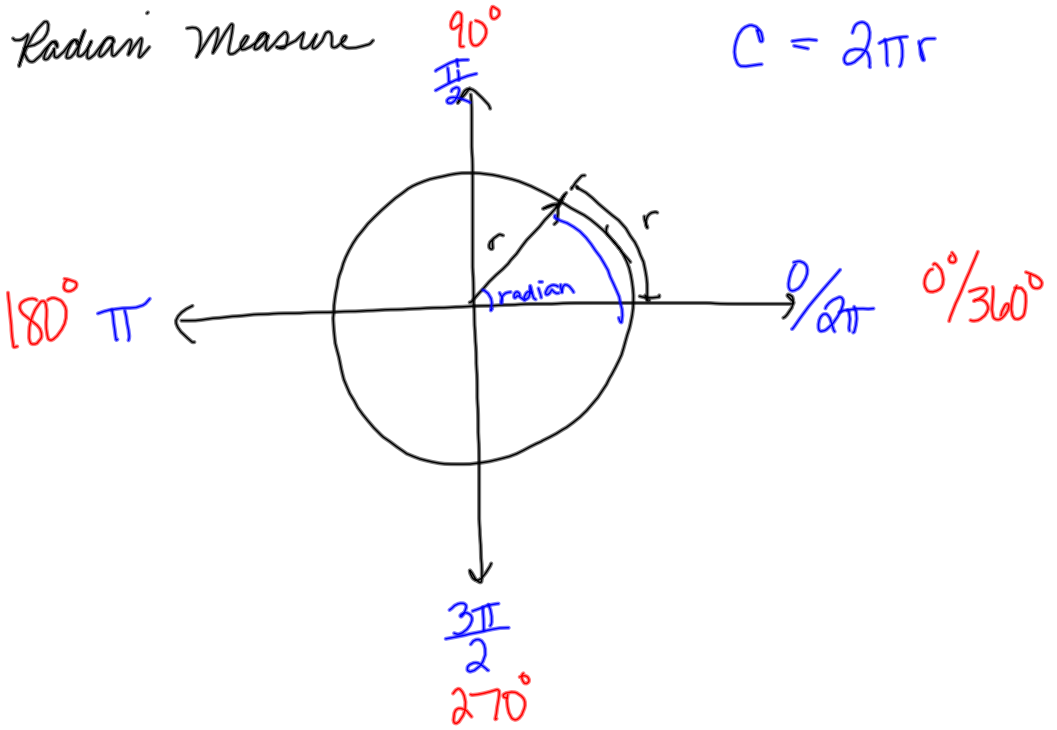
Radian Measure



Converting Between Degrees and Radians

180° equivalent to π radians

Degrees to radians

$\times \frac{\pi \text{ radians}}{180^\circ}$

Radians to degrees

$\times \frac{180^\circ}{\pi \text{ radians}}$

Convert the given angle measure

a. 75° to radians $75^\circ \times \frac{\pi}{180^\circ} = \frac{5\pi}{12}$ radians

b. $-\frac{5\pi}{4}$ radians to degrees $-\frac{5\pi}{4} \times \frac{180^\circ}{\pi} = -\frac{5 \cdot 2 \cdot 3 \cdot 3 \cdot 5}{2 \cdot 2} = -225^\circ$

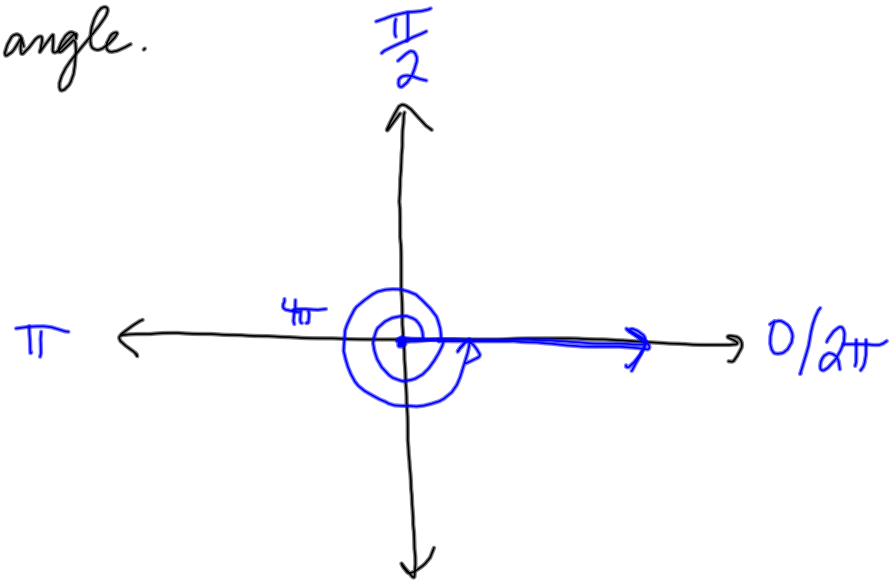
c. $135^\circ \times \frac{\pi}{180^\circ} = \frac{3\pi}{4}$

d. $\frac{\pi}{10}$ $\frac{5\pi}{12} = \frac{\pi}{10} \cdot \frac{180^\circ}{\pi} = 18^\circ$

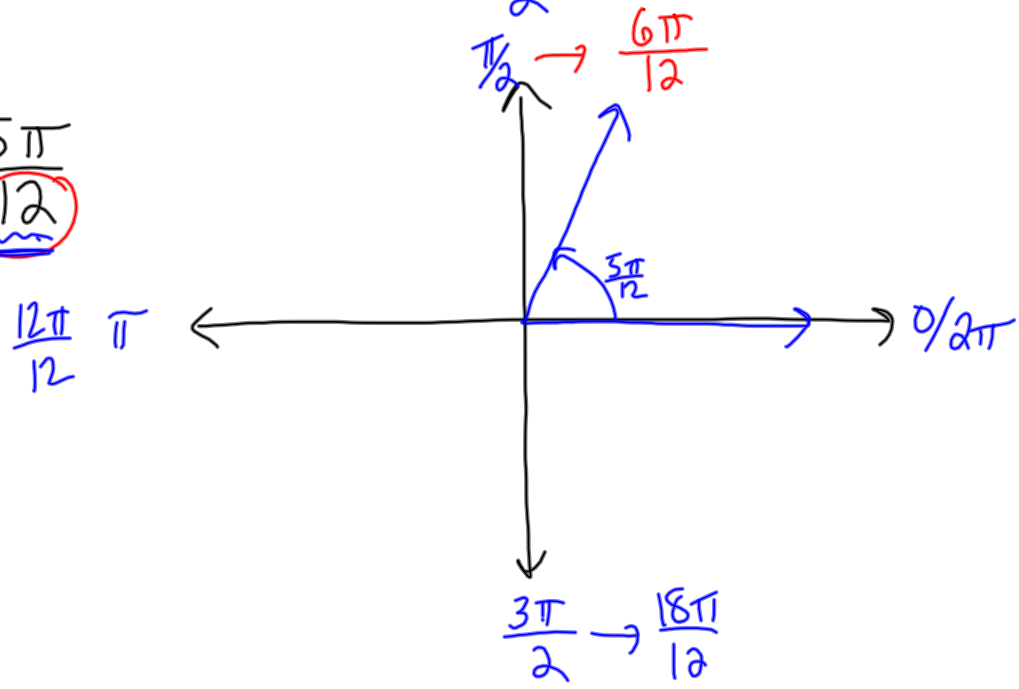
Feb 3-8:47 AM

Draw the angle.

a. 4π



b. $\frac{5\pi}{12}$



Find a positive and negative coterminal angle. add/subtract 2π

a. $\frac{\pi}{10}$

$\frac{\pi}{10} + 2\pi$

$\frac{2\pi}{1} \cdot \frac{10}{10} = \frac{20\pi}{10}$

$\frac{\pi}{10} + \frac{20\pi}{10} = \frac{21\pi}{10}$

$\frac{\pi}{10} - \frac{20\pi}{10} = -\frac{19\pi}{10}$

b. $\frac{7\pi}{12}$

$\frac{7\pi}{12} + \frac{24\pi}{12} = \frac{31\pi}{12}$

$\frac{2\pi}{1} = \frac{24\pi}{12}$

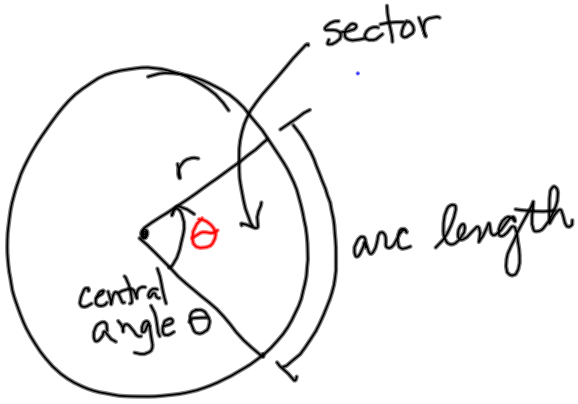
$\frac{7\pi}{12} - \frac{24\pi}{12} = -\frac{17\pi}{12}$

Arc Length and Area of a Sector

$C = 2\pi r$

Arc Length: $s = \theta r$

Area: $A_s = \frac{1}{2}\theta r^2$ $\quad A_o = \pi r^2$



Find the arc length and area of a sector with the given radius r and central angle θ.

a. $r = 4$ in, $\theta = \frac{\pi}{6}$

$(C = 2\pi r)$

$s = \theta r$

$s = \frac{\pi}{6} \cdot 4 \text{ in} \cdot \frac{2 \cdot 2\pi}{2 \cdot 3} = \frac{2\pi}{3}$ in.

≈ 2.09 in

$(A_o = \pi r^2)$

$A = \frac{1}{2}\theta r^2 = \frac{1}{2} \cdot \frac{\pi}{6} \cdot 4^2$

$= \frac{\pi \cdot 2 \cdot 2 \cdot 2 \cdot 2}{2 \cdot 2 \cdot 3} = \frac{4\pi}{3}$ in^2

≈ 4.19 in^2

b. $r = 15$ in, $\theta = \frac{7\pi}{5}$

Calculate

a. $\sin \frac{\pi}{3}$ = MODE RAD

≈ 0.866

DRG

Sec MODE

Due Monday

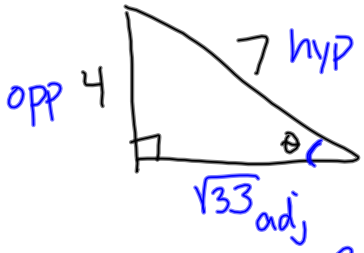
p. 566 (3-5) (7-31) odd

p. 567 (33-45) odd

Quiz Review

Sec. 9.1 + Word Problems

Evaluate the six trig functions. SOHCAHTOA



$\sin\theta = \frac{4}{7}$ $\csc\theta = \frac{7}{4}$

$\cos\theta = \frac{a}{h} = \frac{\sqrt{33}}{7}$ $\sec\theta = \frac{7}{\sqrt{33}} = \frac{7\sqrt{33}}{33}$

$\tan\theta = \frac{opp}{adj} = \frac{4}{\sqrt{33}} \cdot \frac{\sqrt{33}}{\sqrt{33}}$ $\cot\theta = \frac{\sqrt{33}}{4}$

$\frac{4\sqrt{33}}{33}$

$a^2 + b^2 = c^2$

$4^2 + b^2 = 7^2$

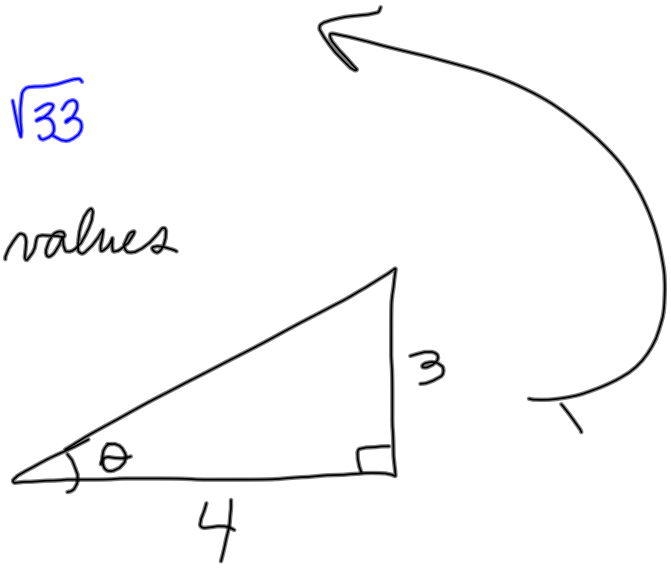
$16 + b^2 = 49$

$-16 \quad -16$

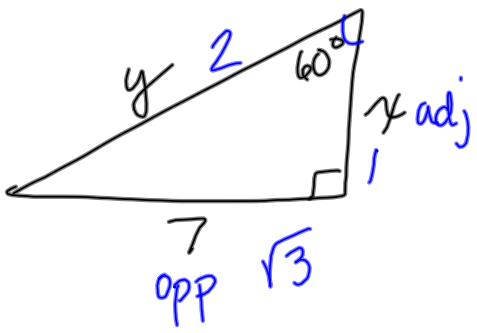
$b^2 = 33 \quad b = \sqrt{33}$

Find trig function values

$\tan\theta = \frac{3}{4} = \frac{opp}{adj}$



Find the exact values of x and y



$\tan 60^\circ = \frac{opp}{adj} = \frac{7}{x}$

$\frac{\sqrt{3}}{1} = \frac{7}{x}$