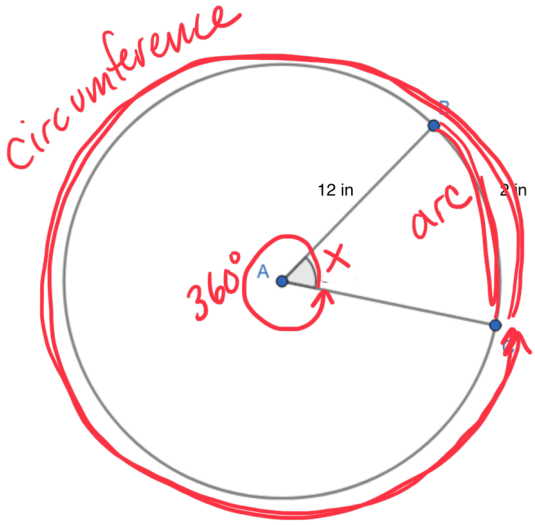
Calculus & Trigonometry

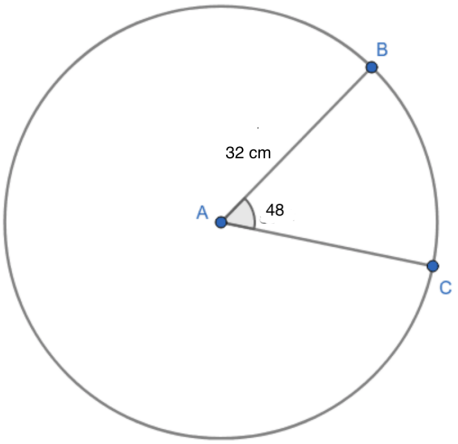
Chapter 4 & 5 Pre-Test

1.) (10 pts total, 5 pts each) Find the measure of the indicated arc or angle.

a) Find m∠BAC



b) Find arc BC



$C = 2\pi r$

circumference

$\frac{x}{360^\circ} = \frac{2\text{ in}}{2\pi r}$

$\frac{x}{360^\circ} = \frac{2\text{ in}}{2\pi(12)}$

$\frac{x}{360^\circ} = \frac{2}{24\pi}$

$\frac{x}{360} = \frac{1}{12\pi}$

$12\pi x = 360$

$\frac{12\pi x}{12\pi} = \frac{360}{12\pi}$

$x = \frac{30}{\pi}$

2.) (10 pts total, 2.5 pts each) Convert each angle measure as indicated.

a) 225° = _____ π

b) $^{7\pi}/_{6}$ = _____ °

c) 580° = _____ π

d) $^{11\pi}/_{4}$ = _____ °

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

$225^\circ * \frac{\pi}{180^\circ}$ $\frac{225\pi}{180}$ $\frac{45\pi}{36}$ $\frac{5\pi}{4}$

3.) (10 pts total, 2 pts each) Provide each of the indicated trigonometric ratios.

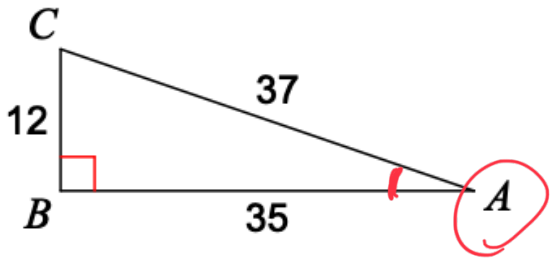
a) cos A $\frac{35}{37}$

b) sec C $\frac{37}{12}$

c) csc A

d) tan C

e) sin C



SOH CAH TOA

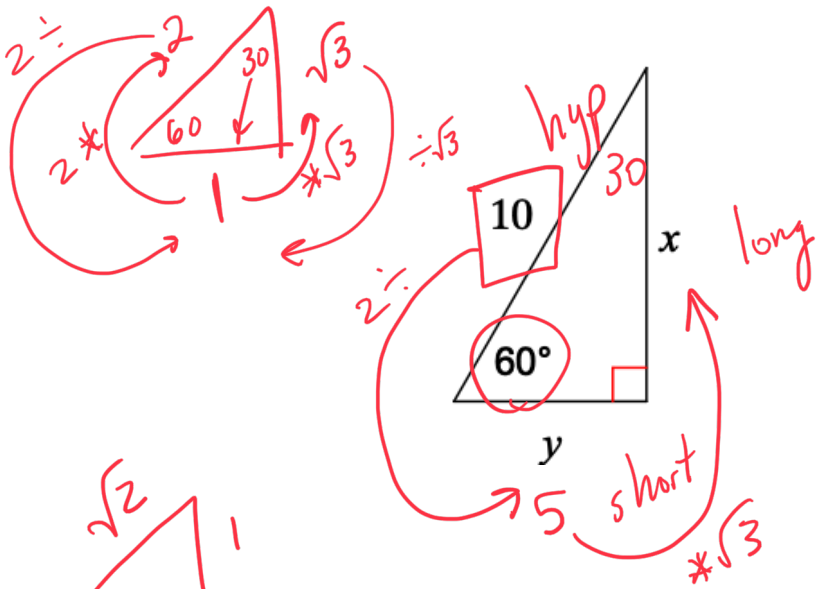
$\cos\theta = \frac{adj}{hyp}$ $\cos A = \frac{35}{37}$

$\sec\theta = \frac{1}{\cos\theta}$ $\sec\theta = \frac{hyp}{adj}$

$\cos\theta = \frac{adj}{hyp}$

4.) (10 pts total, 2.5 pts each) Solve using special triangles. Please express your answer in radical form.

a)



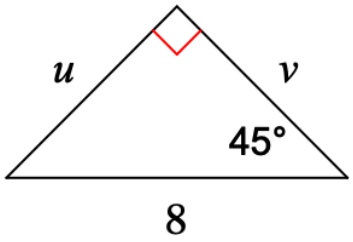
x = $5\sqrt{3}$

y = 5

b)

u =

v =



5.) (20 pts total, 2 pts each) Provide the value of each. Express in radical form if applicable.

a) cos 120°

b) sin $5\pi/6$

Unit Circle

c) tan $7\pi/4$

d) cos $11\pi/6$

e) csc 270°

f) sec $3\pi/4$

g) sin 315°

h) cot 30°

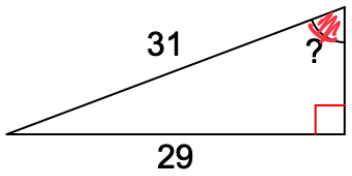
i) sec $4\pi/3$

j) cot $\pi/2$

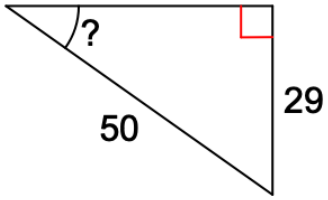
6.) (10 pts total, 2.5 pts each) Solve for the indicated variable.

a) $\sin\theta = \frac{29}{31}$

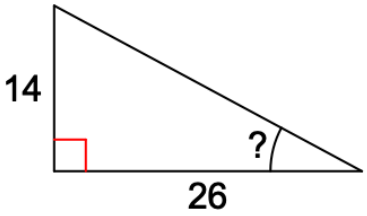
$\theta = \sin^{-1}\left(\frac{29}{31}\right) =$



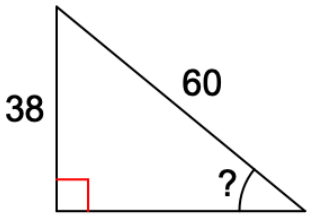
b)



c)



d)

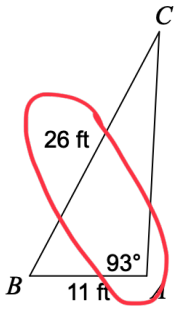


7.) (10 pts total, 5 pts each)

a) Find m∠C.

Law Sine

$\frac{\sin 93^\circ}{26} = \frac{\sin C}{11}$

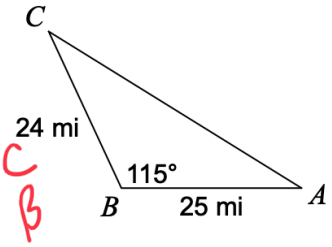


b) Find AC.

Law of Cosine

$c^2 = a^2 + b^2 - 2ab\cos C$

B A C AC B



$\frac{2\pi}{b}$ $\frac{2\pi}{\frac{1}{2}}$ $2\pi \div \frac{1}{2}$ $2\pi * 2 = 4\pi$

sin θ → y

1.) sin θ/cos θ
2.) Adjust period
3.) horizontal shift
4.) Amplitude
5.) vertical shift

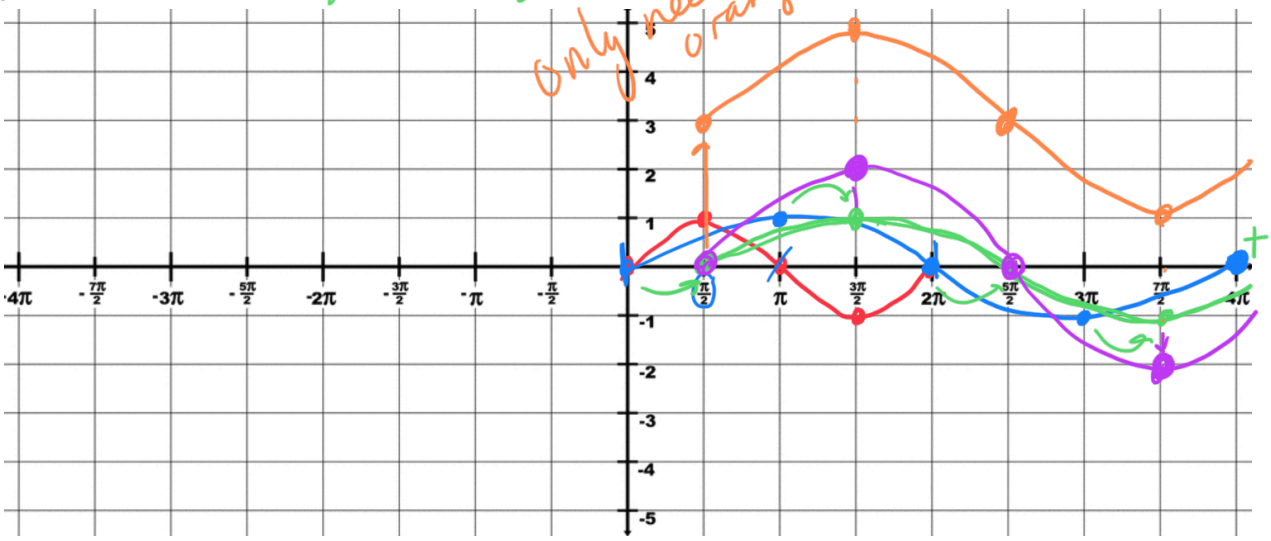
8.) (20 pts total, 10 pts each) Graph each of the following trig functions.

Normal period $2\pi \rightarrow 4\pi$

a) $y = 2\sin(\frac{1}{2}x - \pi/4) + 3$

$\frac{-\pi}{\frac{1}{4}}$ $\frac{1}{2}$ $\frac{-\pi}{4} * 2 = \frac{-2\pi}{4} = \frac{-\pi}{2}$

only need 0 range



cos → x

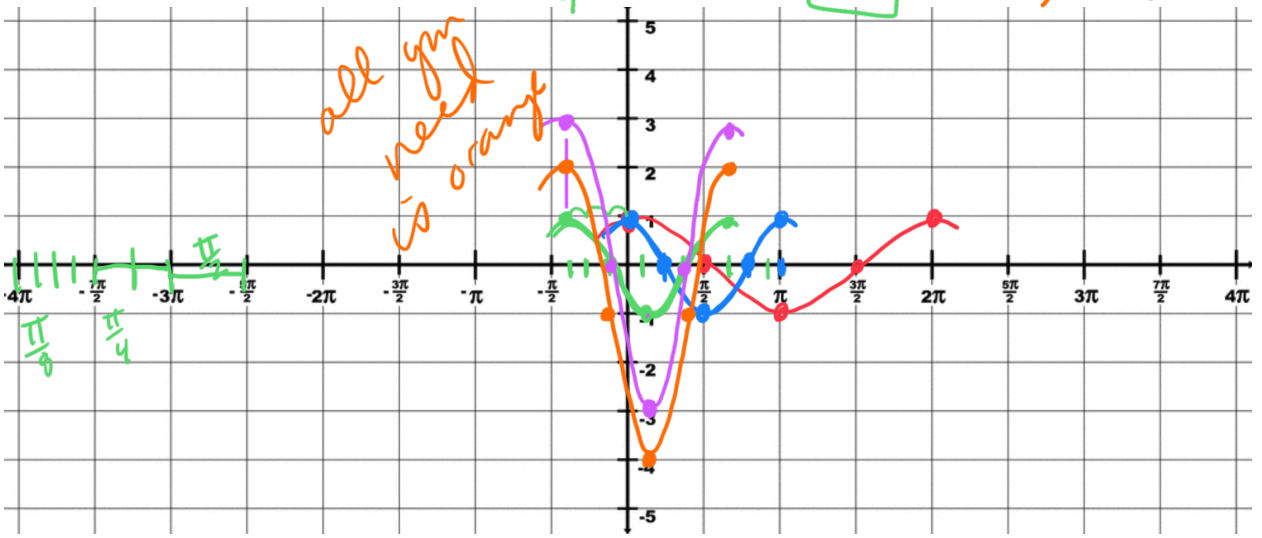
b) $y = 3\cos(2x + 3\pi/4) - 1$

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

$\frac{3\pi}{4} \div \frac{2}{1}$ $\frac{3\pi}{4} * \frac{1}{2} = \frac{3\pi}{8}$ $+\frac{3\pi}{8}$

1.) sin θ/cos θ
2.) period
3.) horizontal shift
4.) amplitude
5.) Vertical shift

all you need is range



$\frac{\pi}{8}$ $\frac{\pi}{4}$