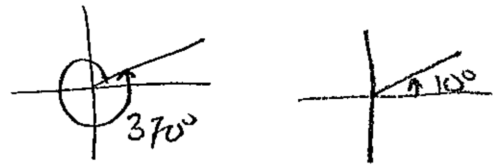
Quiz 4

Key

Show *all* your work. No credit is given without reasonable supporting work. There are *two* sides to this quiz.

1. [2] TRUE/FALSE: Circle T in each of the following cases if the statement is *always* true. Otherwise, circle F.

   T F $370° = 10°$

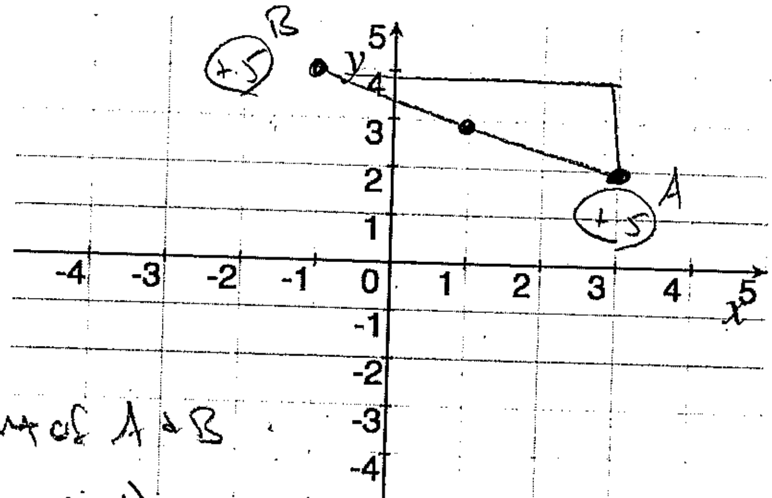
   coterminal but not the same?

   T F $\cos(370°) = \cos(10°)$ b/c begin & end in same place

2. Use the graph for the following questions.

   (a) [1] Plot the points $A = (3, 2)$ and $B = (-1, 4)$.

   (b) [3] (WebHW10 #6) Write the equation of a circle with the endpoints of the diameter at points A and B.



Center of circle = midpoint of A & B (+.5)

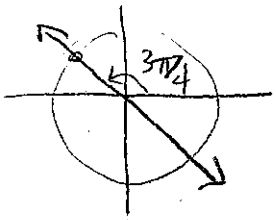
so $\left(\frac{3+-1}{2}, \frac{2+4}{2}\right)$ or $(1, 3)$ (+.5)

radius = $\frac{\text{distance between A \& B}}{2} = \frac{\sqrt{2^2+4^2}}{2} = \frac{\sqrt{20}}{2} = \frac{2\sqrt{5}}{2}$ (+.5) (+.5)

So $(y-3)^2 + (x-1)^2 = (\sqrt{5})^2$

eq of circle (+.5)
got it (+.5)

3. [2] (Circle Wks #3) Find all point(s) that are both on the unit circle and on the line $y = -x$. Be sure to explain your reasoning or show some work.



$y = -x$ AND

$y^2 + x^2 = 1$

so top equation into bottom equation

$(-x)^2 + x^2 = 1$

$x^2 + x^2 = 1$

$2x^2 = 1$

$x^2 = \frac{1}{2}$

$x = \pm\sqrt{\frac{1}{2}}$

b/c $y = -x$

$y = \mp\sqrt{\frac{1}{2}}$

so $\left(\sqrt{\frac{1}{2}}, -\sqrt{\frac{1}{2}}\right)$ and $\left(-\sqrt{\frac{1}{2}}, \sqrt{\frac{1}{2}}\right)$

or

so $\left(\cos\frac{3\pi}{4}, \sin\frac{3\pi}{4}\right)$

and $\left(\cos\frac{7\pi}{4}, \sin\frac{7\pi}{4}\right)$

So $\left(-\frac{\sqrt{2}}{2}, \frac{\sqrt{2}}{2}\right)$

$\left(\frac{\sqrt{2}}{2}, -\frac{\sqrt{2}}{2}\right)$

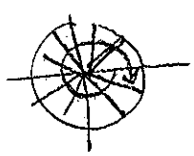
work +.5

one +1

both +.5

4. [2] (§4.3 #56) Find the exact values of:

$\sin\left(\frac{-13\pi}{6}\right)$



$= \sin\left(-\frac{\pi}{6}\right)$

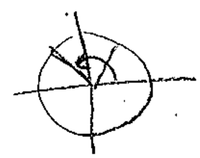
$= -\frac{1}{2}$ +.5

sign +.5

angle +.5

correct angle +.5

$\tan\left(\frac{3\pi}{4}\right)$



$\frac{\sin\frac{3\pi}{4}}{\cos\frac{3\pi}{4}} = \frac{\sqrt{2}/2}{-\sqrt{2}/2} = -1$ +1

— or —

slope of terminal side $= -1$

angle +.5