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.
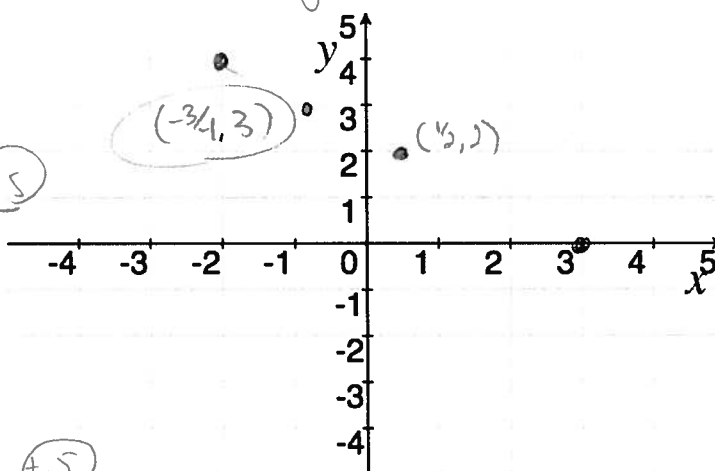
   T (F) $370° = 10°$

   $370°$ is ⌀   vs $10°$ which is ⊕

   T (F) The graph of a circle defines a function.

   circles fail the vertical line test

   —or—

   notice if $x=0$ then $y=1$ or -1 ?

2. [3] (§1.1 #18) Find the (exact) point a quarter of the way from $(-2,4)$ to $(3,0)$. understood ? (+.5)
   Show your work.

   midpt formula (+.5)
   used right (1.5)

   notice

   $$\left(\frac{-2+3}{2}, \frac{4+0}{2}\right) = \left(\frac{1}{2}, 2\right) \quad (+.5)$$

   is halfway between $(-2,4)$ and $(3,0)$

   So

   $$\left(\frac{\frac{1}{2}+-2}{2}, \frac{2+4}{2}\right) = \left(\frac{-\frac{3}{2}}{2}, 3\right) = \left(\frac{-3}{4}, 3\right) \quad (+1)$$

   is half way between (the halfway point) & $(-2,4)$
   or a quarter of the way from $(-2,4)$ and $(3,0)$

   note: $\left(\frac{7}{4}, 1\right)$ or $(1.75, 1)$
   is a quarter of the way from $(3,0)$
   to $(-2,4)$

Graph showing points $\left(-\frac{3}{4}, 3\right)$ and $(\frac{1}{2}, 2)$ on coordinate axes with y-axis labeled 5 at top and x-axis extending to 5.

1

3. [1] (WebHW10 #14) Covert 370° into radians.

$$370° \cdot \frac{\pi \text{ rad}}{180°} = \frac{370\pi}{180} \text{ rad} = \frac{37\pi}{18} \text{ radians}$$

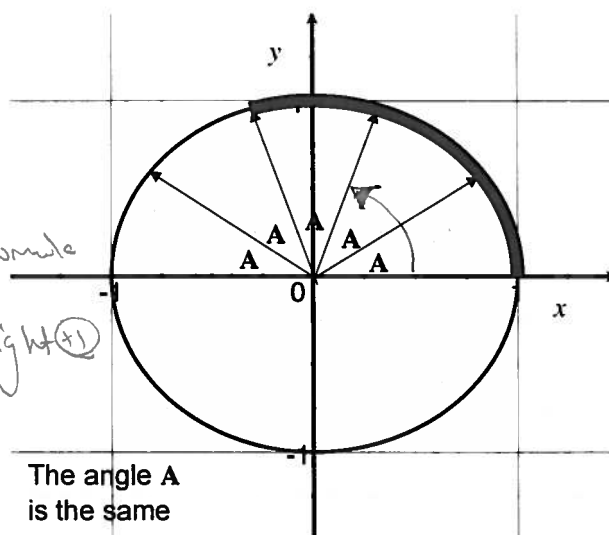ratio Ⓘ.5   correct factor/multiplier Ⓘ.5

4. Consider the graph for the following.

   (a) [2] (Circle Wks #1) Write the equation for the circle shown.

   unit circle ✓

   $$x^2 + y^2 = 1$$

   circle formula ⊕
   used right ⊕ ✓

The angle A is the same

   (b) [2] (§4.1 #12) Draw the angle $\frac{2\pi}{5}$ radians.

   (c) [1] Find the exact length of the highlighted arc.

   $$\frac{3\pi}{5} \text{ units}$$

   recall that radians are the length of the arc traced out on the unit circle ✓

   or

   we know the top hemisphere is π units

   since π is divided up into 5 equal parts (with length $\pi/5$) and the bold arc takes three of those, the length is $3 \cdot \frac{\pi}{5}$ or $\frac{3\pi}{5}$

2