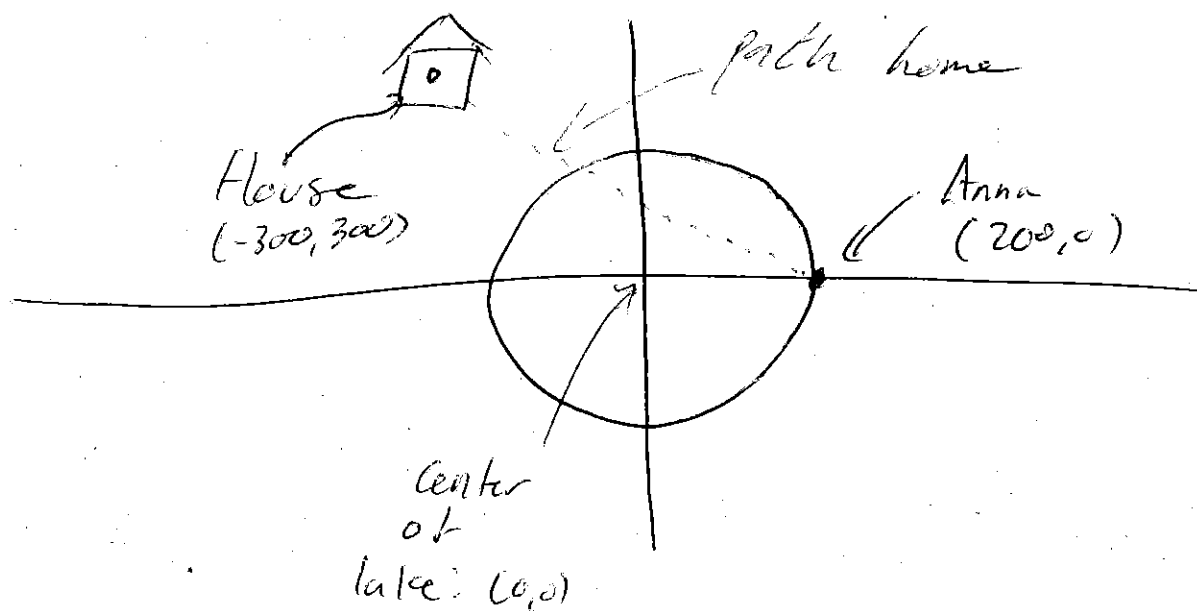


Quiz 2 Solutions

(a)



b)
$$\text{Slope} = \frac{\Delta y}{\Delta x} = \frac{300 - 0}{-300 - 200} = -\frac{300}{500} = -\frac{3}{5}$$

Po, hc: $(200, 0)$ (could use $(-300, 300)$)

$$y = -\frac{3}{5}(x - 200) + 0$$

{ simplify (optional) }

$$y = -\frac{3}{5}x + 120$$

(c) Intersect:

i) $x^2 + y^2 = 200^2$

ii) $y = \frac{-3}{5}x + 120$

$$x^2 + \left(\frac{-3}{5}x + 120\right)^2 = 40,000$$

$\{$

$\Rightarrow 14,400 = 40,000$

$$x^2 + .36x^2 - 144x + 14,400 = 40,000$$

$$1.36x^2 - 144x - 25,600 = 0$$

Quadratic
Formula

$$x = \frac{144 \pm \sqrt{(-144)^2 - 4(1.36)(-25,600)}}{2(1.36)}$$

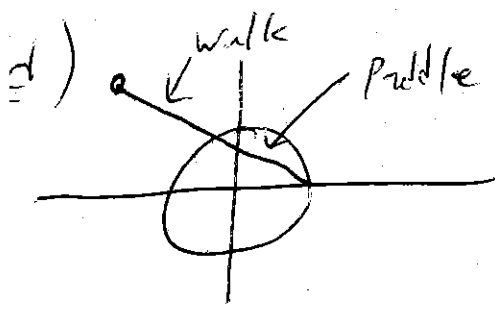
$x = 200$

or

$x = -94.1176$

$y = 176.47$

$(-94.1176, 176.47)$



$d_p = \text{distance paddling}$

$$= \sqrt{(294.1176)^2 + (176.47)^2}$$

$$= 342.997$$

$d_w = \text{distance walking}$

$$= \sqrt{(300 - 94.1178)^2 + (300 - 176.47)^2}$$

$= 240.098$

$$t_p = d_p / r_p = \frac{342.997}{2} = 171.5$$

$$t_w = d_w / r_w = \frac{240.098}{3} = 80.0$$

Total = 251.5 seconds