

Check:

point b:  $(3.57 + .935)^2 + (1.39 + .355)^2$  35 cent. 4/7  
 $= 20.295 + 3.045 = 23.34 \Rightarrow R = 4.831$  again

point c:  $(3.14 + .935)^2 + (2.24 + .355)^2$   
 $= 16.6056 + 6.734 = 23.34 \Rightarrow R = 4.831$  again

So,  $R = 4.831$  cm

Next we know

$$y_a = y_0 - R \sin(\omega t_a + \delta)$$

$$y_b = y_0 - R \sin(\omega t_b + \delta)$$

$$\therefore \sin(\omega t_a + \delta) = -\frac{.38 + .355}{4.831} = -\frac{.735}{4.831} = -.1521$$

$$\Rightarrow \omega t_a + \delta = -8.749^\circ = -.1526 \text{ radians}$$

$$\sin(\omega t_b + \delta) = -\frac{1.39 + .355}{4.831} = -\frac{1.745}{4.831} = -.3612$$

$$\Rightarrow \omega t_b + \delta = -21.174^\circ = -.3696 \text{ radians}$$

$$\therefore \omega t_b - \omega t_a = -.217 \text{ radians}$$