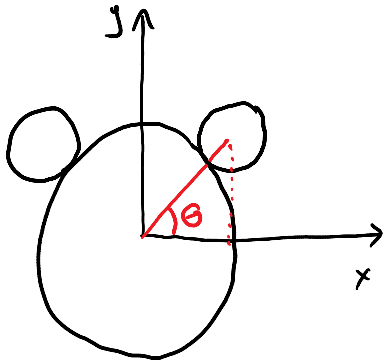


Section 4.3: Applications in Computer Graphics

Thursday, November 06, 2014
8:35 AM

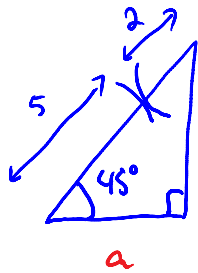


What are the coordinates for the centres of each circle?

radius - large circle 5 units
- small circle 2 units

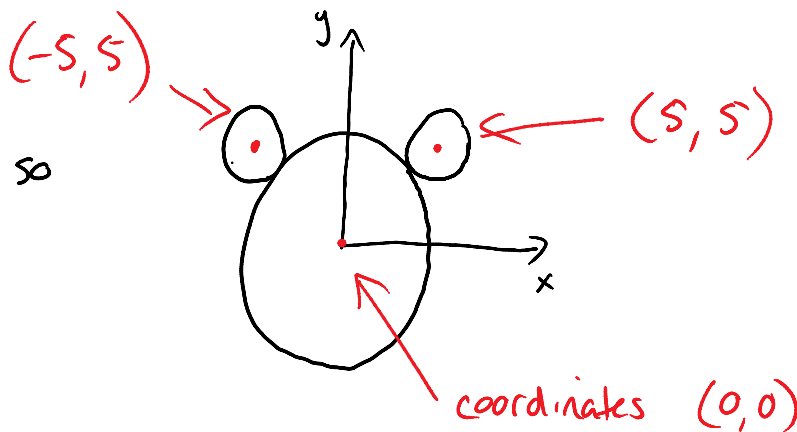
we'll say that the angle θ is 45°

Let's solve the triangle:



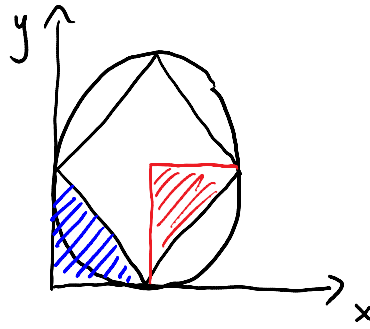
$$\cos 45^\circ = \frac{\text{adj}}{\text{hyp}} = \frac{a}{7}$$

$$\begin{aligned} a &= 7 \cos 45^\circ \\ &\approx 4.94975 \\ &\approx 4.9 \text{ or } 5 \end{aligned}$$



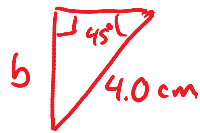
example: $y \uparrow$

example:



What are the coordinates of the centre of the circle if the inscribed square has sides of length 4.0 cm?

so choose an appropriate triangle to draw in and solve



$$\sin 45^\circ = \frac{b}{4.0}$$

$$\begin{aligned} b &= 4.0 \sin 45^\circ \\ &\approx 2.82843 \\ &\approx 2.8 \text{ cm} \quad (\text{or } 2.83 \text{ cm}) \end{aligned}$$

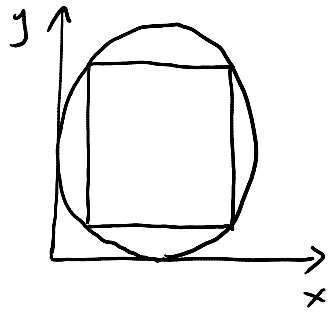
answer:

$$(2.8 \text{ cm}, 2.8 \text{ cm})$$

answer the question!

include the units, if appropriate

slightly harder: (tricksy!)



same dimensions, but the square is rotated so that its sides are parallel to the axes

what are the coordinates of each corner of the square?

