

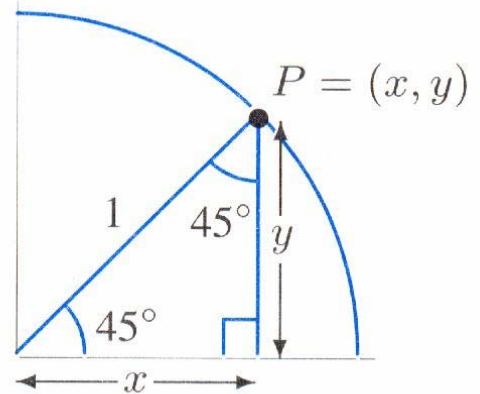
Exact Values of Special Angles

Reading Questions for Ch 6 Tools p. 288ff
Due: Tuesday, January 16, 2007

Name _____

The point P is on a unit circle.

1. What is the equation of this circle? (See Section 6.2)
Hint: Its center is $(0, 0)$ and radius is 1.
2. How does the value of x compare with the value of y ?
Explain why.



2. What are the **exact** values of x and y ?
(Tip: Can Pythagoras help?)
Write an equation and solve it in order to find x and y .

3. Give the exact and approximate values (to four decimal places) of each:

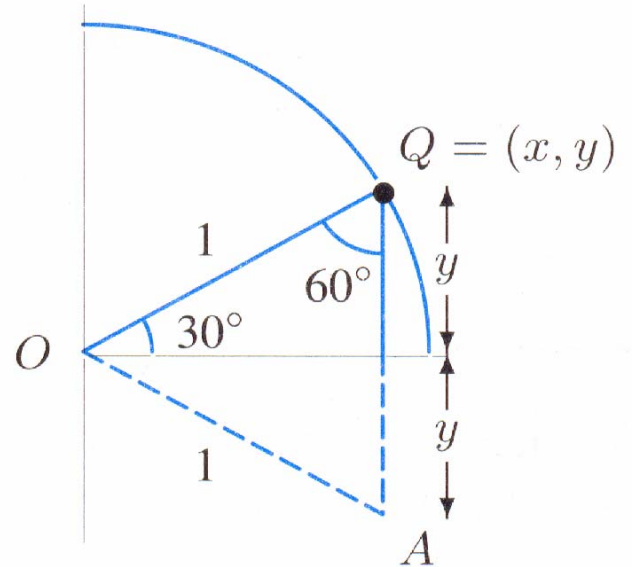
$$\cos 45^\circ = \frac{\text{EXACT}}{\text{EXACT}} \approx \frac{\text{APPROXIMATE}}{\text{APPROXIMATE}}$$

$$\sin 45^\circ = \frac{\text{EXACT}}{\text{EXACT}} \approx \frac{\text{APPROXIMATE}}{\text{APPROXIMATE}}$$

4. What is the measure of angle OAQ ? _____
5. What is the length of side QA (or $2y$)? _____
Why?

What is the value of y ? _____

6. What is the **exact** value of x , i.e., the x -coordinate of Q ?
(Tip: Can Pythagoras help?)
Write an equation and solve it in order to find the **exact** value of x .



7. Give the exact and approximate values (to four decimal places) of each:

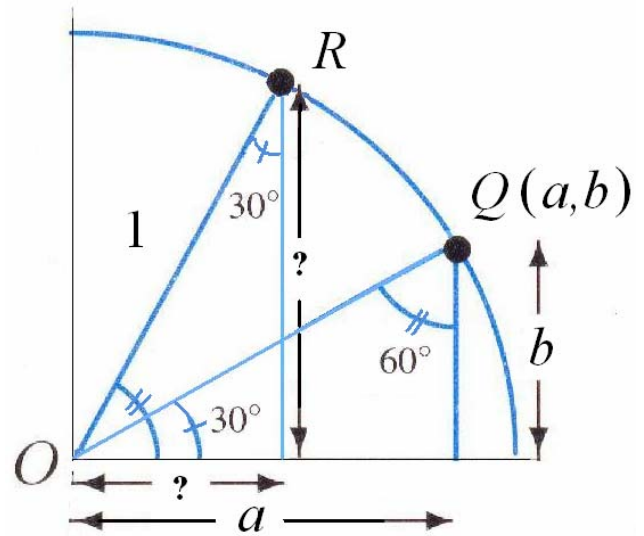
$$\cos 30^\circ = \frac{\text{EXACT}}{\text{EXACT}} \approx \frac{\text{APPROXIMATE}}{\text{APPROXIMATE}}$$

$$\sin 30^\circ = \frac{\text{EXACT}}{\text{EXACT}} \approx \frac{\text{APPROXIMATE}}{\text{APPROXIMATE}}$$

8. Label the sides a and b with their exact values.
9. Find the exact coordinates of the point R on the unit circle. Explain your reasoning.

exact x -coordinate of R :

exact y -coordinate of R :



10. Give the exact and approximate values (to four decimal places) of each:

$$\cos 60^\circ = \frac{\text{EXACT}}{\text{EXACT}} \approx \frac{\text{APPROXIMATE}}{\text{APPROXIMATE}}$$

$$\sin 60^\circ = \frac{\text{EXACT}}{\text{EXACT}} \approx \frac{\text{APPROXIMATE}}{\text{APPROXIMATE}}$$