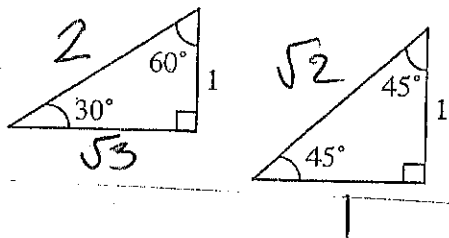
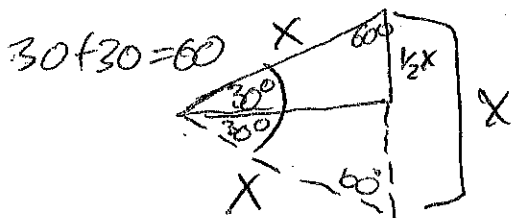


Show work where appropriate

1. Label the missing sides of the triangles with their exact lengths (leave in radical form)

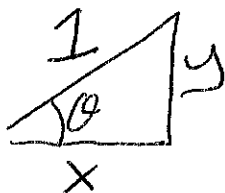


2. A 30-60-90 triangle is sometimes called a half-equilateral. Draw a picture to show this and how it can be helpful to find the missing sides in the triangle above.



$a^2 + b^2 = c^2$ can find missing sides.

3. What can a sine value tell you about a point on a circle? What about a cosine value?

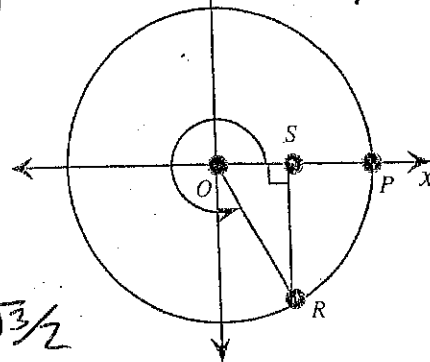


$\sin \theta = \frac{\text{opp}}{\text{hyp}} = \frac{y}{1} \rightarrow \sin \theta = y$
 $\cos \theta = \frac{\text{adj}}{\text{hyp}} = \frac{x}{1} \rightarrow \cos \theta = x$

4. The measure of angle ROS in triangle ROS is 60 degrees.

- a. The curved arrow represents the rotation of segment OR. Beginning from the positive x-axis. Through how many Degrees has segment OR rotated?

300°



- B. If $OR = 1$, what is the exact length of OS and SR?

$OS = 1/2, SR = \sqrt{3}/2$

- C. What are the exact coordinates of point R?

$(1/2, -\sqrt{3}/2)$

5. What angle in the first quadrant could you reference to help you find the sine and cosine of each of the following angle?

- a. 330 degrees

30°

- b. 120 degrees

60°

- c. 113 degrees

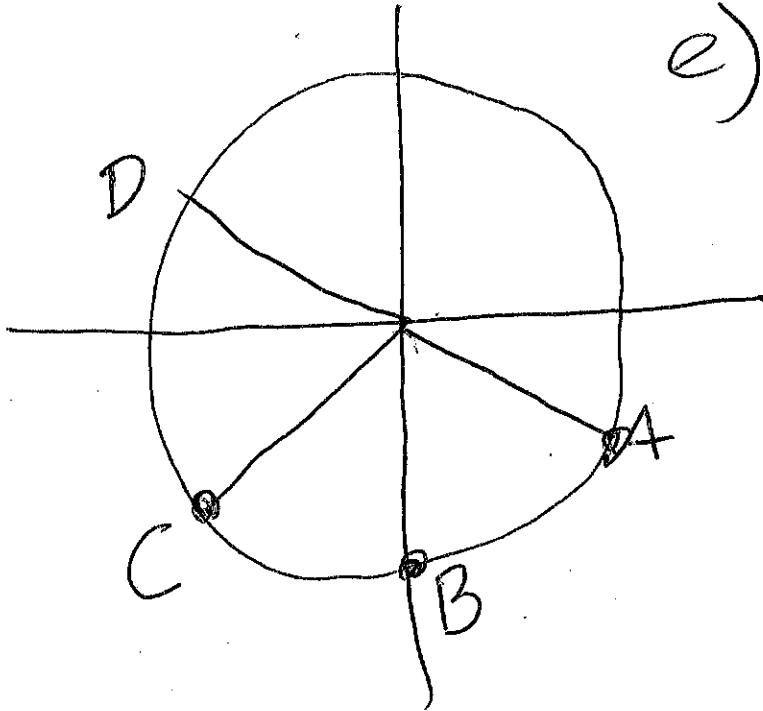
67°

- d. 203 degrees

23°

6. Sketch a unit circle. In your circle, sketch an angle that has:

- A positive cosine and a negative sine
- A sine of -1
- A negative cosine and a negative sine
- A cosine of about -0.9 and a sine of about 0.4
- Could an angle have a sine equal to 0.9 and a cosine equal to 0.8? Give an angle or explain why not.



e) No. $0.9^2 + 0.8^2$ is too big.
 $0.81 + 0.64$
 $1.45 > 1.$

7. A 70 degree angle is drawn for you in the unit circle shown.

- Approximate the coordinates of point R $(.4, .9)$
- How could you represent the exact coordinates of point R?

$(\cos 70^\circ, \sin 70^\circ)$
 $(.34, .94)$

