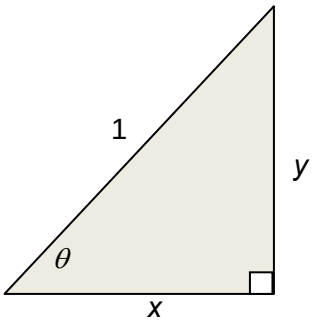
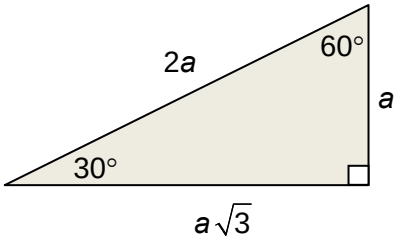
Problem 1 – Introduction to the Unit Circle

1. Using the right triangle diagram, write an equation for *x* in terms of *θ*.

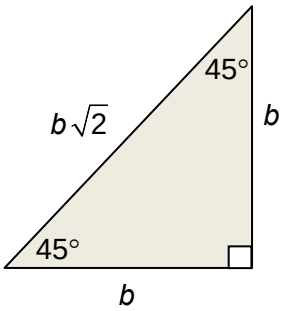
2. Using the right triangle diagram, write an equation for *y* in terms of *θ*.



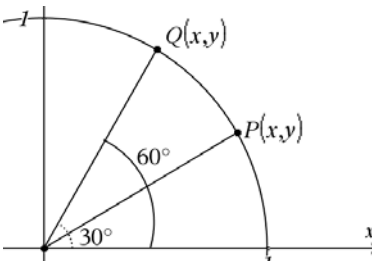
3. What is the value of *a* when the hypotenuse is 1 unit?



4. What is the value of *b* when the hypotenuse is 1 unit? Don't forget to rationalize the denominator!



5. Apply your knowledge of 30-60-90 right triangles and identify the coordinates of point *P*.



6. Again, using your knowledge of 30-60-90 right triangles, identify the coordinates of point *Q*.

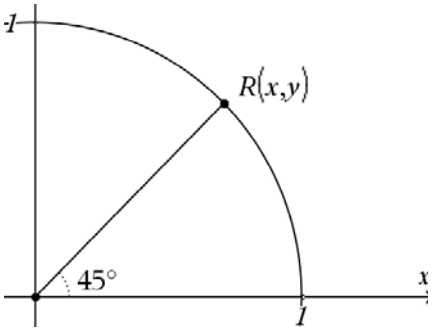
7. The cosine of 30° is _____

8. The sine of 30° is _____

9. The cosine of 60° is _____

10. The sine of 60° is _____

11. Using your knowledge of 45-45-90 right triangles, identify the coordinates of point *R*. _____

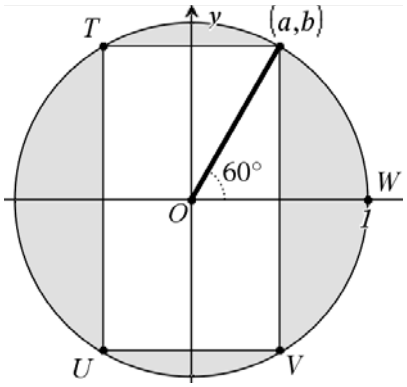


12. The cosine of 45° is _____.

13. The sine of 45° is _____.

Problem 2 – Extending the Pattern

Identify the coordinates of the following points in terms of *a* and *b*.



14. *T* _____

15. *U* _____

16. *V* _____

Identify the measure of the following angles.

17. $m\angle WOT$ = _____

18. $m\angle WOU$ = _____

19. $m\angle WOV$ = _____