Searching for Patterns

Use the unit circle on page 1.3 to complete the table.

θ	**sin θ**	**cos θ**	**tan θ**
30°			
45°			
60°			
90°			
120°			
135°			
150°			
180°			
210°			
225°			
240°			
270°			
300°			
315°			
330°			
360°			

Use the values in the table to answer the following questions.

1. For what values of θ is sin θ positive?

2. For what values of θ is cos θ negative?

3. For what values of θ is tan θ positive? Negative? Why?

4. For what angle does cos θ = cos(30°)?

5. Name two other pairs of angles where the cosine of the angle is the same.

6. For what angle does tan θ = tan(45°)?

7. Name two other pairs of angles where the tangent of the angle is the same.

8. Record all the patterns you see with the sine function.

9. Are there any other patterns you see?

Extension – Patterns in Reciprocal Functions

Complete the table using the unit circle on page 2.2.

θ	**sec** θ	**csc** θ	**cot** θ
30°			
45°			
60°			
90°			
120°			
135°			
150°			
180°			
210°			
225°			
240°			
270°			
300°			
315°			
330°			
360°			

Record any patterns you see.