

Summary Chapter 7: The Unit Circle – Sine and Cosine Functions

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Section 1:

Terminology

- Angle
- Terminal side
- Initial side
- Standard position
- Positive angle
- Negative angle
- Quadrantal angle
- Degrees
- Radians
- Arc length

Be Able To

- Use degree measure
- Use radian measure
- Convert between degrees and radians
- Draw angles in standard position
- Find the length of a circular arc
- Find the area of a sector of a circle
- Find angular and linear speed
- Use linear and angular speed to describe motion on a circular path
- **Apply the concepts:** Reference page 592 problems 58 - 67

Section 2:

Terminology

- Hypotenuse
- Opposite side
- Adjacent side
- Cofunction
- Sine, Cosecant
- Cosine, Secant
- Tangent, Cotangent

Be Able To

- Use right triangles to evaluate trigonometric functions
- Find function values for $30^\circ\left(\frac{\pi}{6}\right)$, $45^\circ\left(\frac{\pi}{4}\right)$, $60^\circ\left(\frac{\pi}{3}\right)$
- Use equal cofunctions of complementary angles
- Use the definitions of trigonometric functions of any angle
- Use right triangle trigonometry to solve applied problems
- **Apply the concepts:** Reference page 603 problems 52 - 56

Section 3:

Terminology

- Unit circle
- Reference angle

Be Able To

- Find function values for the sine and cosine of $30^\circ\left(\frac{\pi}{6}\right)$, $45^\circ\left(\frac{\pi}{4}\right)$, $60^\circ\left(\frac{\pi}{3}\right)$
- Identify the domain and range of sine and cosine functions
- **Apply the concepts:** Reference page 619 problems 100 - 104

Section 4:

Terminology

- No additional definitions

Be Able To

- Find exact values of the trigonometric functions secant, cosecant, tangent, and cotangent at $\frac{\pi}{3}$, $\frac{\pi}{4}$, and $\frac{\pi}{6}$
- Use properties of even and odd trigonometric functions
- Recognize and use fundamental identities
- Evaluate trigonometric functions with a calculator
- **Apply the concepts:** Reference page 632 problems 72 - 75