Agenda/Objectives/Notes PAPPC Section 4.3

Starter Problem: For the angle in standard position whose terminal side passes through the point (7, -24) give the exact value of the six trigonometric functions.

Today's Agenda
1. **Unit Circle Quiz**
2. Starter problem
3. Review assignment due
4. Today's objectives: You will be able to
   A) Determine trigonometric values of acute angles
   D) Use trigonometric functions to model and solve real-live problems.
4. Today's assignment: 308/6-16E, 31, 32, 34-48E, 54, 56, 61, 62, 64, 66, 68, 71

Notes/Examples

You must know the following definitions and identities.

Right Triangle Definitions of Trigonometric Functions

$$\sin\theta = \frac{\text{opp}}{\text{hyp}} \qquad \cos\theta = \frac{\text{adj}}{\text{hyp}} \qquad \tan\theta = \frac{\text{opp}}{\text{adj}}$$

$$\csc\theta = \frac{\text{hyp}}{\text{opp}} \qquad \sec\theta = \frac{\text{hyp}}{\text{adj}} \qquad \cot\theta = \frac{\text{adj}}{\text{opp}}$$

Fundamental Trigonometric Identities

Reciprocal identities

$$\sin\theta = \frac{1}{\csc\theta} \qquad \cos\theta = \frac{1}{\sec\theta} \qquad \tan\theta = \frac{1}{\cot\theta}$$

$$\csc\theta = \frac{1}{\sin\theta} \qquad \sec\theta = \frac{1}{\cos\theta} \qquad \cot\theta = \frac{1}{\tan\theta}$$

Quotient identities

$$\tan\theta = \frac{\sin\theta}{\cos\theta} \qquad \cot\theta = \frac{\cos\theta}{\sin\theta}$$

Pythagorean Identities

$$\sin^2\theta + \cos^2\theta = 1 \qquad 1 + \tan^2\theta = \sec^2\theta$$

$$1 + \cot^2\theta = \csc^2\theta$$

Solving Right Triangles: a right triangle is solved when all side and angle measurements are found: