

Trig Angles - Day 1

Angles Larger than 180°

We can use a “Cartesian” grid as a base for show angles in standard position.

The initial arm will always be placed on the positive x-axis, and the terminal arm will be located in any of the 4 quadrants (I, II, III, IV).

Co-terminal Angles

Co-terminal angles are angles, of different values, that have the same initial arm and the same terminal arm when the angle is in standard position.

To determine co-terminal angles, you need to add 360° or subtract 360° from the principal angle.

Determine the principal angle:

- (a) 670°
- (b) 1450°
- (c) -1245°

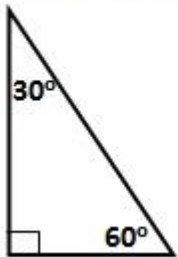
Determine 2 co-terminal angles for each:

- (a) 140°
- (b) -335°
- (c) 65°

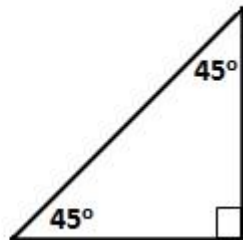
Special Triangles

There are two special triangles with exact lengths that we can use to determine the exact trig ratios for angles measuring 30° , 60° , and 45° .

30-60-90 Triangle



45-45-90 Triangle



Finding Exact Trig Ratios for Angles of 30° , 60° , and 45°or any Related Angle to These

Example 1: Determine the exact primary trigonometric ratios for 210° .

Example 2: Determine the exact primary trigonometric ratios for -330° .

Example 3: Determine the exact reciprocal trigonometric ratios for 135° .

More Examples (finding just one ratio instead of several)

Determine the exact trigonometric ratio for:

- 1) $\sin -420^\circ$
- 2) $\cos 315^\circ$
- 3) $\tan -150^\circ$
- 4) $\sin 225^\circ$
- 5) $\cos -120^\circ$
- 6) $\cot 390^\circ$
- 7) $\sec -300^\circ$