

Draw 120° in standard position. The terminal side is in the second quadrant and the reference angle is 60° . Use the $30^\circ - 60^\circ - 90^\circ$ triangle to find the value of this function at the reference angle:

$$\sec 60^\circ = \frac{2}{1} = 2$$

Use the signs of x and y in the second quadrant to determine the sign of secant:

$$\sec 120^\circ = \frac{1}{x} = \frac{(+)}{(-)} = (-)$$

$$\text{So } \sec 120^\circ = -2.$$