Derek White

Section 1.1

Find the measure of (a) the complement and (b) the supplement of an angle with the given measure.

15. a) $90^\circ - 54^\circ = 36^\circ$

b) $180^\circ - 54^\circ = 126^\circ$

19. a) $90^\circ - 14^\circ 20' = 75^\circ 40'$

$75^\circ\ 60' - 20'$

21. a) $90^\circ - 20^\circ 10' 30'' = 69^\circ 49' 30''$

$69^\circ\ 60' - 10' = 69^\circ\ 50'\ 49'\ 60'' - 30''$

Perform each calculation:

39. $62^\circ 18' + 21^\circ 41' = 83^\circ 59'$

$41' + 18' = 59'$

$62^\circ + 21^\circ = 83^\circ$

47. $180^\circ - 119^\circ 26'$

$180^\circ - 119^\circ = 61^\circ$

$60^\circ\ 60' - 26' = 34'$

$60^\circ 34'$

Convert each angle measure to decimal degrees. If applicable, round to the nearest thousandth of a degree.

57. $-60^\circ 12' = -60.2^\circ$

$\frac{12'}{60'} = 0.2^\circ$

59. $20^\circ 54' 36'' = 20.91^\circ$

$\frac{54'}{60'} = 0.9^\circ \quad \frac{36''}{60''} = \frac{0.6}{60'} = 0.01^\circ$

Convert each angle measure to degrees, minutes, and seconds. If applicable, round to the nearest second.

69) -18.515°

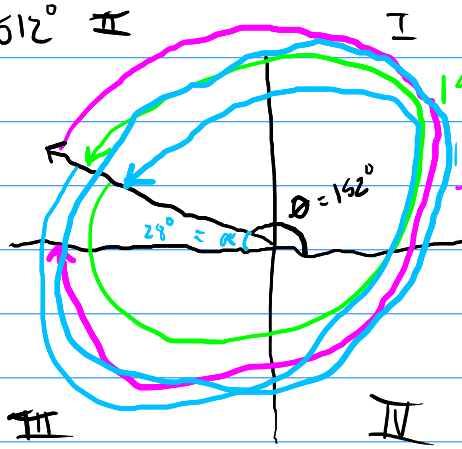
$-.5^\circ(60') = -30'$

$-.015^\circ(60')(60'') = -54''$

$-18^\circ\ 30'\ 54''$

Sketch each angle in standard position. Draw an arrow representing the correct amount of rotation. Find the measure of two other angles, one positive and one negative, that are coterminal with the given angle. Give the quadrant of each angle, if applicable.

116) 512°



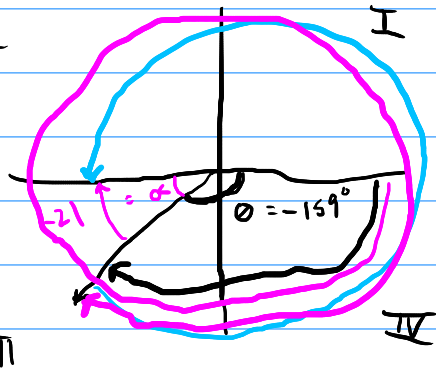
$152^\circ + 360^\circ = 512^\circ$

$152^\circ + 360^\circ + 360^\circ = 872^\circ$

$-360 + 152 = -208^\circ$

Quadrant II

118) -159°

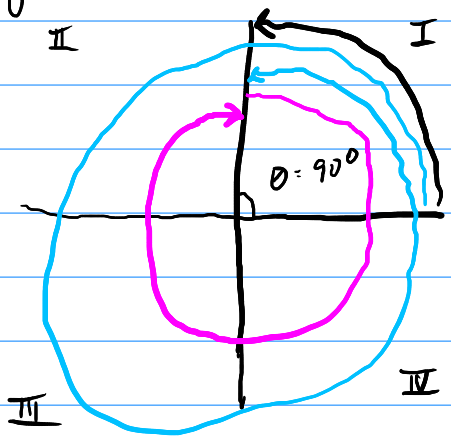


$-159 - 360 = -519^\circ$

$-159 + 360 = 201^\circ$

Quadrant III

119) 90°



$90 - 360 = -270^\circ$

$90 + 360 = 450^\circ$

Quadrants I & II

Rotating Tire: A tire is rotating 600 times per min. Through how many degrees does a point on the edge of the tire move in 1/2 sec?

125.

600/min

$600'(60'') = 36000''$

$- 0.5''$

$35999.5''$

$\div 60''$

$\sim 599.98'$

$60'$

$\sim 9.9997^\circ$

Correction:

$\frac{600 \text{ rev}}{\text{min}}$ $\quad 1 \text{ rev} = 360^\circ$

$\frac{360^\circ}{1 \text{ rev}}$ $\quad \frac{1 \text{ min}}{60 \text{ sec}}$

$\left(\frac{600'(360^\circ)}{60 \text{ sec}}\right) 0.5 \text{ sec} = 1800^\circ$