$$a = \frac{3000 \times \sin 34^\circ}{\sin 16^\circ} = \frac{3000 \times 0.5592}{0.2756} = 6087$$

$\times \frac{\pi}{180} \times 34 \to A$

$\sin(4) = \sin 34^\circ$

Lo 6086,7054

In the right triangle BCD, angle B is 50° and $a = 6087$.

Whence $\frac{h}{6087} = \sin 50^\circ$

$h = 6087 \times \sin 50^\circ = 6087 \times 0.7770 = 4663$ feet.

63. Functions of angles greater than 90°. 21/02/2019

Were we required to find side b in the oblique triangle just considered, the application of the Law of Sines would necessitate finding the value of the sine of angle ABC, that is, sin 130°. This suggests we need to generalize the idea of trigonometric functions of angles to include angles greater than 90°. In fact we consider trigonometric functions of angles even greater than 180°. Although angles greater than 180° cannot be used in triangles, they are used in problems involving rotary motion.

triangle > 180° ⇒ review

Since the unit circle shows continuous changes in the functions as the angle increases toward 90°, we again turn to this device to build our concept of functions of angles greater than 90°. For convenience we adopt the mathematical convention of dividing the plane into four quadrants by means of a pair of perpendicular lines called axes, (Fig 16) and of regarding distances measured upward and to the right, as positive, and those measured downward and to the left, as negative. As before, (in fig. 7), PQ represents sin A and we generalize our definition of the sine to be the perpendicular distance to the horizontal axis from the point at which the terminal side of the angle touches the unit circle. Then the lines corresponding to PQ in the other quadrants represents the sines of angles as follows:

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$P'Q' = \sin PAQ' = \sin(180^\circ - A)$

$P'Q'' = \sin PAQ'' = \sin(180^\circ + A)$

$PQ''' = \sin PAQ''' = \sin(360^\circ - A)$

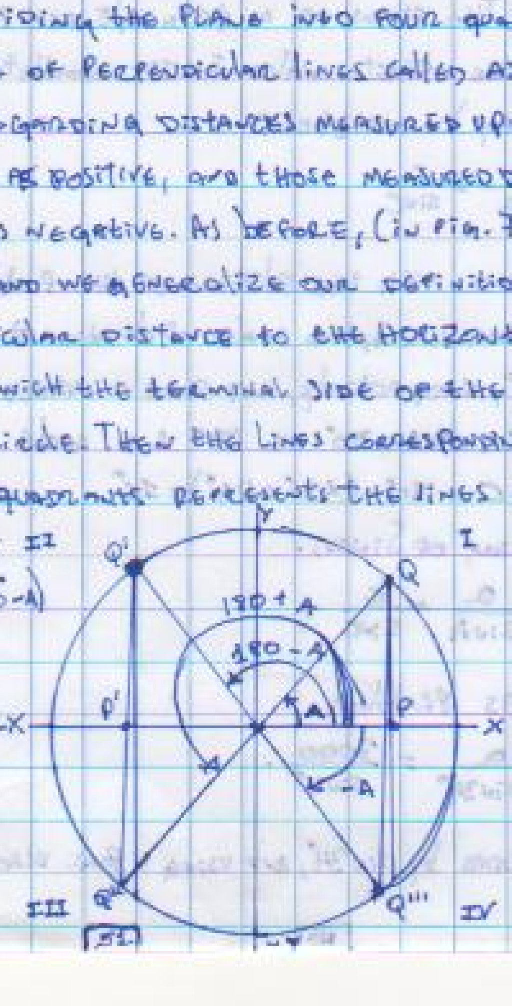

Fig 16

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