Chapter 6 / **Example 15**

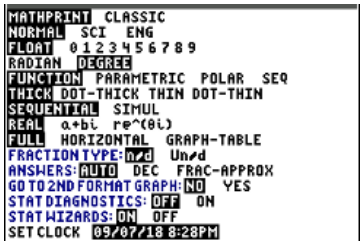
Finding angles using the sine rule

The diagram to the right shows a river with a 5 m long fence AB, built at an angle of 34° to the riverside.
Farmer Brown wants to fence off an area in the shape of a triangle ABC (as shown in the diagram) for his three goats. He has 3m of fencing left. Find the angles ACB and ABC.

Press [mode].

Use the [◄] [▲] [►] [▼] keys to place the cursor on DEGREE in the Mode menu, and then press [enter] to highlight it.

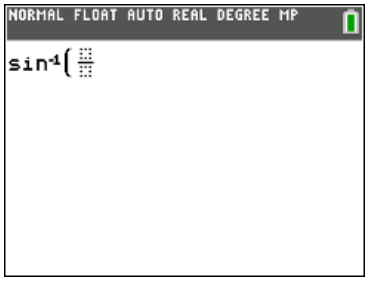
Press [2nd] [quit] to return to the home screen.



$\sin C = \frac{5\sin 34°}{3}$.

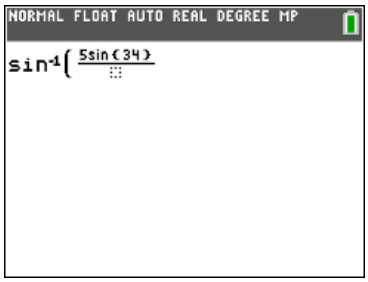
Using your GDC enter the expression $C = \sin^{-1}\left(\frac{5\sin 34}{3}\right)$ directly.

Press [2nd] [$\sin^{-1}$] then press [MATH] [f1] 1:n/d to add a fraction template.



Type 5 [sin] 34 in the numerator.

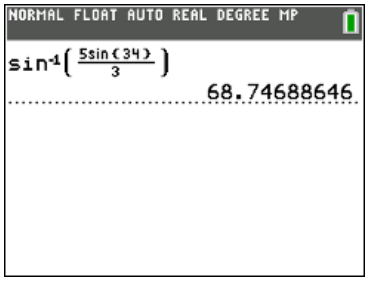
Close the parentheses and then press [▼] to move to the denominator.



Type 20 Press [►] and close the parentheses.

Press [enter].

$C = 68.7°$.



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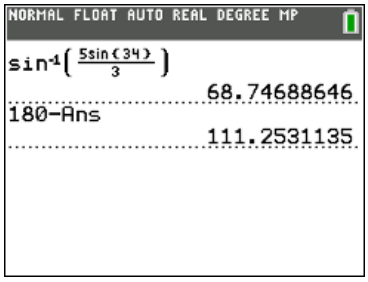
But c could also be obtuse too. Enter 180 [−] [2nd] [ans]. $C = 68.7°$ or 111.3.	
Copying the results for C, find the possible values for B. $B = 180 - (34 + C)$. $B = 77.3$ or 34.7.