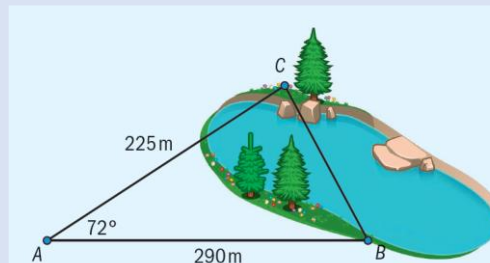


Chapter 1 / Example 13

Using the cosine rule

A surveyor of a lake measures $AB = 225$ m, and $AC = 290$ m, and $\hat{BAC} = 72^\circ$ in the diagram at right.

- a** Find BC .
b Find \hat{C} .



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.

```
MATHPRINT CLASSIC
NORMAL SCI ENG
FLOAT 0 1 2 3 4 5 6 7 8 9
RADIAN DEGREE
FUNCTION PARAMETRIC POLAR SEQ
THICK DOT-THICK THIN DOT-THIN
SEQUENTIAL SIMUL
REAL a+bi r∠θ
FULL HORIZONTAL GRAPH-TABLE
FRACTIONTYPE: DND Un/d
ANSWERS: AUTO DEC FRAC-APPROX
GOTO2ND FORMAT GRAPH: NO YES
STAT DIAGNOSTICS: OFF ON
STAT WIZARDS: ON OFF
SET CLOCK 09/07/18 8:28PM
```

$$CB^2 = 290^2 + 225^2 - 2 \times 290 \times 225 \times \cos 72^\circ$$

Enter $\sqrt{290^2 + 225^2 - 2 \times 290 \times 225 \times \cos 72}$ and press **[ENTER]**.

$$CB = 307 \text{ m.}$$

$$\sqrt{290^2 + 225^2 - 2 \times 290 \times 225 \times \cos(72)} \\ 307.2430345$$

Save your answer to CB as A by pressing **[STO▶]** **[ALPHA]** **A**

$$\sqrt{290^2 + 225^2 - 2 \times 290 \times 225 \times \cos(72)} \\ 307.2430345 \\ \text{Ans} \rightarrow A \\ 307.2430345$$

$$290^2 = CB^2 + 225^2 - 2 \times CB \times 225 \times \cos \hat{C}^\circ$$

$$\hat{C} = \cos^{-1} \left(\frac{CB^2 + 225^2 - 290^2}{2 \times CB \times 225} \right)$$

Enter $\cos^{-1} \left(\frac{A^2 + 225^2 - 290^2}{2 \times A \times 225} \right)$ directly and press **[ENTER]**.

Press **[ALPHA]** **[F1]** 1:n/d to add a fraction template.

$$C = 63.9^\circ$$

$$\sqrt{290^2 + 225^2 - 2 \times 290 \times 225 \times \cos(72)} \\ 307.2430345 \\ \text{Ans} \rightarrow A \\ 307.2430345 \\ \cos^{-1} \left(\frac{A^2 + 225^2 - 290^2}{2 \times A \times 225} \right) \\ 63.85496542$$