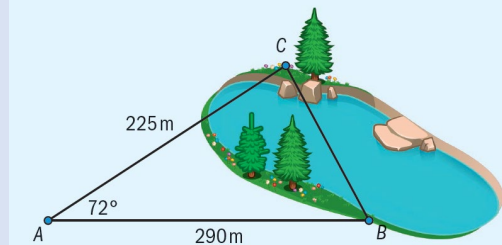


Chapter 1 / Example 13

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 **MENU** 1 **Run-Mat** to display the Run-Matrix screen for arithmetical calculations.

Press **SHIFT** **MENU** (SETUP).

Scroll down using **▼** to Angle and change the setting to **F1** Deg.

Press **EXIT**.

```
Input/Output: Math
Mode          : Comp
Frac Result   : d/c
Func Type     : Y=
Draw Type     : Connect
Derivative    : Off
Angle         : Deg
Deg Rad Gra
```

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

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

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

```
√290²+225²-2×290×225×>
307.2430345
JUMP DELETE MAT/VCT MATH
```

Press **SHIFT** **(←)** (Ans) **(→)** **ALPHA** A and press **EXE**. This will save the value found to the maximum accuracy that the GDC stores it.

```
√290²+225²-2×290×225×>
307.2430345
Ans→A
307.2430345
JUMP DELETE MAT/VCT MATH
```

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

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

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

Press **□** to use the fraction template.

$$C = 63.9^\circ$$

```
307.2430345
Ans→A
307.2430345
cos⁻¹ ( (A²+225²-290²) / (2×A×225) )
63.85496542
JUMP DELETE MAT/VCT MATH
```