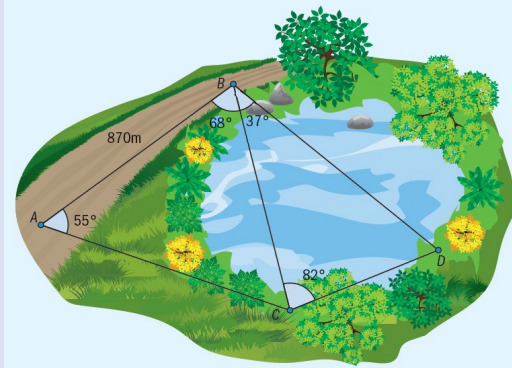


Chapter 1 / **Example 11**

Using the sine rule to find a length

The diagram shows a lake with three docks at points B, C and D. The distance AB along a highway is known to be 870 m. Surveyors measure the angles as given in the diagram.

- a** Use triangulation to find the distances BC and BD.
- b** Nils, who rows at a speed of 1.5 m/s, starts from dock B. Calculate how much longer will it take him to cross the lake if he rows to the further of the two docks.



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
```

Calculate $\hat{C} = 180^\circ - 55^\circ - 68^\circ = 57^\circ$

```
180-55-68
57
JUMP DELETE MAT/VCT MATH
```

$$BC = \frac{870 \times \sin 55}{\sin 57}$$

Enter the expression $\frac{870 \times \sin 55}{\sin 57}$ directly.

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

$BC = 850$ m

```
180-55-68
57
870xsin 55
sin 57
849.7523411
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.


```
870xsin 55
sin 57
849.7523411
Ans→A
849.7523411
JUMP DELETE MAT/VCT MATH
```


Chapter 1 / **Example 11**

Using the sine rule to find a length

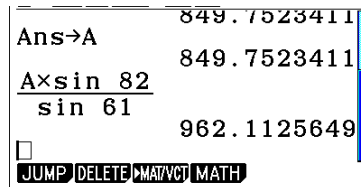
$$BD = \frac{BC \times \sin 82}{\sin 61}$$






Enter the expression $\frac{A \times \sin 82}{\sin 61}$ directly.

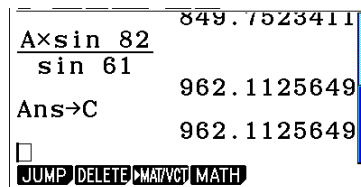
Press  to enter the fraction template.

Press  A to enter the value saved as A.


$$BD = 962 \text{ m}$$





Press   (Ans)   C and press . This will save the value found to the maximum accuracy that the GDC stores it.



$$\text{time} = \frac{\text{distance}}{\text{speed}}$$

Press  to enter the fraction template.

Type  C   A in the numerator.

Press , type 1.5 in the denominator and press .

The time is 74.9 s.

