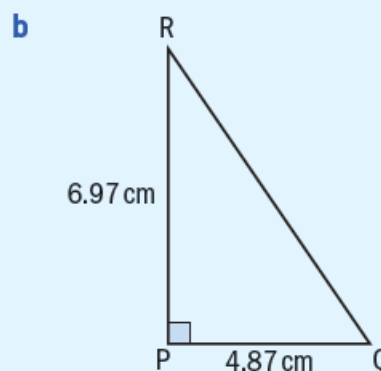
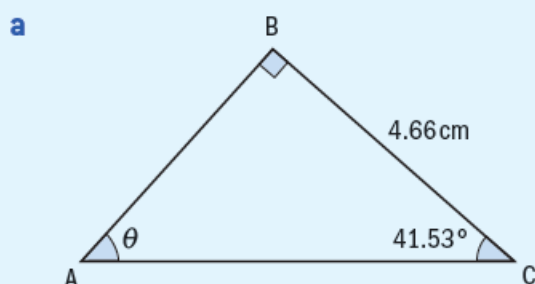


Chapter 1 / **Example 7****Using exact values in trigonometry**

For each triangle, solve for the unknown angles and sides.



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 re^(θi)
FULL HORIZONTAL GRAPH-TABLE
FRACTIONTYPE: n/d 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
```

Calculate $\theta = 90^\circ - 41.53^\circ = 48.57^\circ$

```
90-41.53
48.47
```

Calculate $AC = \frac{4.66}{\cos 41.53}$

Press **[ALPHA]** **[F1]** 1:n/d and enter 4.66 in the numerator of the fraction template.

In the denominator press **[COS]**. Type 41.53, close the parentheses and press **[ENTER]**.

$AC = 6.22$ cm

```
90-41.53
48.47
4.66
cos(41.53)
6.224881143
```

Chapter 1 / **Example 7****Using exact values in trigonometry**

Calculate AB using Pythagoras' theorem.

Press $\boxed{2\text{nd}} \boxed{x^2} \boxed{\sqrt{}}$. Navigate up to the result of AC and press $\boxed{\text{ENTER}}$. This will paste the value found to the maximum accuracy that the GDC stores it.

Press $\boxed{x^2} \boxed{-}$, type 4.66^2 and press $\boxed{\text{ENTER}}$.

$$AB = 4.13 \text{ cm}$$

$$\begin{aligned} &90 - 41.53 \\ &48.47 \\ &\frac{4.66}{\cos(41.53)} \\ &6.224881143 \\ &\sqrt{6.224881143^2 - 4.66^2} \\ &4.127171579 \end{aligned}$$

Note that using the rounded value 6.22 would result in an inaccurate answer of 4.12 to 3 s.f.

$$\begin{aligned} &\text{NORMAL FLOAT AUTO REAL DEGREE MP} \\ &\sqrt{6.22^2 - 4.66^2} \\ &4.119805821 \end{aligned}$$

$$\text{Calculate } RQ = \sqrt{6.97^2 + 4.87^2}$$

$$RQ = 8.50 \text{ cm}$$

$$\begin{aligned} &\text{NORMAL FLOAT AUTO REAL DEGREE MP} \\ &\sqrt{6.97^2 + 4.87^2} \\ &8.5028113 \end{aligned}$$

$$\text{Calculate } \hat{PQR} = \tan^{-1}\left(\frac{6.97}{4.87}\right)$$

Press $\boxed{\text{ALPHA}} \boxed{\text{F1}} \text{ 1:n/d}$ to use the fraction template.

$$\hat{PQR} = 55.1^\circ$$

$$\begin{aligned} &\text{NORMAL FLOAT AUTO REAL DEGREE MP} \\ &\sqrt{6.97^2 + 4.87^2} \\ &8.5028113 \\ &\tan^{-1}\left(\frac{6.97}{4.87}\right) \\ &55.057663 \end{aligned}$$

Use the calculator value of \hat{PQR} to calculate \hat{PRQ} .

$$\hat{PRQ} = 90 - 55.1^\circ$$

$$\hat{PRQ} = 34.9^\circ$$

$$\begin{aligned} &\text{NORMAL FLOAT AUTO REAL DEGREE MP} \\ &\sqrt{6.97^2 + 4.87^2} \\ &8.5028113 \\ &\tan^{-1}\left(\frac{6.97}{4.87}\right) \\ &55.057663 \\ &90 - 55.057663 \\ &34.942337 \end{aligned}$$