

Chapter 6 / **Example 11**

## Finding an angle using the cosine rule

In triangle PQR, PQ = 9 cm, QR = 16 cm and PR = 11 cm. Find the smallest angle in the triangle to the nearest degree.

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 P<θ>  
FULL HORIZONTAL GRAPH-TABLE  
FRACTIONTYPE: D/D Un/d  
ANSWERS: AUTO DEC FRAC-APPROX  
GO TO 2ND FORMAT GRAPH: NO YES  
STAT DIAGNOSTICS: OFF ON  
STAT WIZARDS: ON OFF  
SET CLOCK 09/07/18 8:28PM

$$\cos A = \frac{16^2 + 11^2 - 9^2}{2 \times 16 \times 11}.$$

Use your GDC enter the expression

$$\cos^{-1} \left( \frac{16^2 + 11^2 - 9^2}{2 \times 16 \times 11} \right).$$

Type **[2nd]** **[cos]** (**[cos<sup>-1</sup>]**) and insert the fraction template by pressing **[ALPHA]** **[f1]** 1:n/d

$\cos^{-1} \left( \frac{\Box}{\Box} \right)$

Type 16 **[x<sup>2</sup>]** **[+]** 11 **[x<sup>2</sup>]** **[-]** 9 **[x<sup>2</sup>]** in the numerator.

Press **[↓]** to move to the denominator and type 2 **[×]** 16 **[×]** 11

Press **[→]** and close the parentheses.

Press **[enter]**.

$$A = 33^\circ.$$

NORMAL FLOAT AUTO REAL DEGREE MP  
 $\cos^{-1} \left( \frac{16^2 + 11^2 - 9^2}{2 \times 16 \times 11} \right)$   
..... 32.76375776.....