

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 **MENU** 1 **Run-Matrix** 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
```

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

Use your GDC to enter the expression

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

Type **SHIFT** **COS** (\cos^{-1}) and insert the fraction template by pressing **□** **□**

```
cos⁻¹  □
        □
JUMP DELETE ▶ MAT/VCT MATH
```

Type 16 **x²** **+** 11 **x²** **-** 9 **x²** in the numerator.

Press **▼** to move to the denominator and type 2 **x** 16 **x** 11.

Press **EXE**.

$$A = 33^\circ.$$

```
cos⁻¹  16²+11²-9²
        2×16×11
        32.76375776
JUMP DELETE ▶ MAT/VCT MATH
```