For any triangle, if we know the length of two sides, and the angle between them, we can work out the missing side using the cosine rule.

The formula will be given and is a squared equals b squared plus c squared subtract two b c cosine a.

We can find the length of QR in this triangle, by putting the values we know into the cosine rule.

QR squared equals QP squared plus PR squared subtract two times QP times PR times cosine of angle QPR.

250 squared plus 180 squared subtract two times 250 times 180 times cos 147.

So, QR equals the square root of 250 squared plus 180 squared subtract two times 250 times 180 times cos 147 to get QR equals 412 point seven seven metres.

In this triangle, all the sides are given.

To find the missing angle use the cosine rule:

Cosine a equals b squared plus c squared subtract a squared, over two times b times c.

A squared is always the side opposite the angle a to be found.

To find the angle YZX, substitute the values into the cosine rule:

Cosine YZX equals eight point five squared, plus seven point two squared subtract six point three squared, over two times eight point five, times seven point two.

So, YZX equals the inverse of the cosine function of eight point five squared plus seven point two squared, subtract six point three squared, over two times eight point five, times seven point two and calculate to give 46 point four one, so the angle at Z is 46 point four one degrees.

Choose the cosine rule when three sides are given, or two sides and the included angle are given.

The rules are given on the formula sheet.