

## Starter: Square Neighbours

In the list below, adjacent numbers add up to square numbers.

10 15 21 4 5

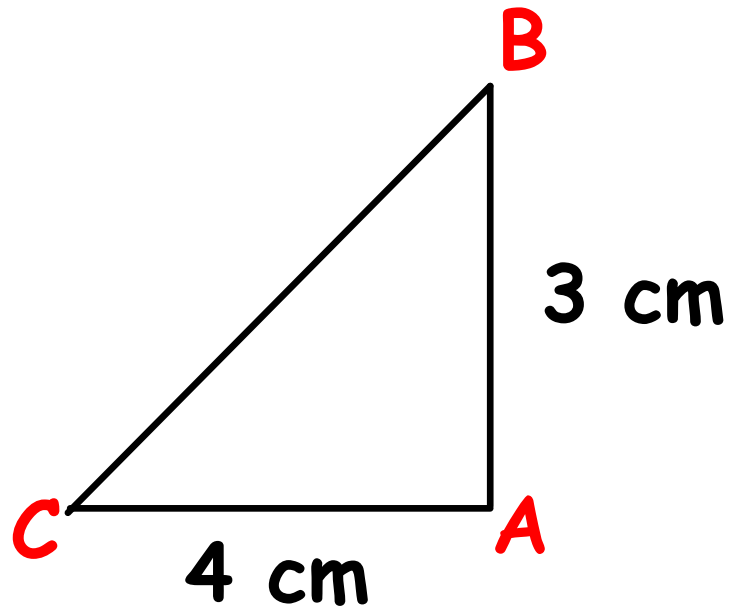
(10 + 15 = 25; 15 + 21 = 36; 21 + 4 = 25; 4 + 5 = 9)

Can you write the numbers from 1 to 17 in a list so that adjacent numbers add up to square numbers?

**<http://www.youtube.com/watch?v=qvvySP1nsM8&feature=related>**



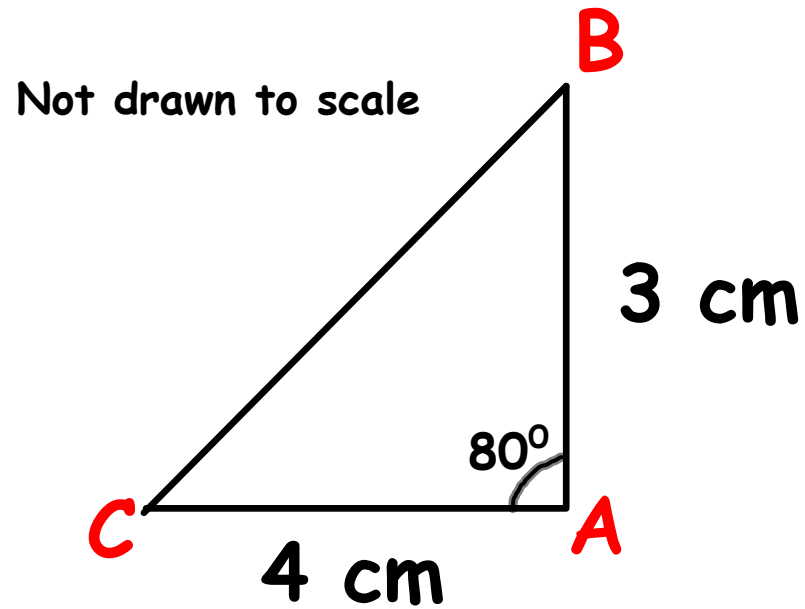
# Introduction to the Cosine Rule



Find length BC

Not drawn to scale

# Introduction to the Cosine Rule



Find length **BC**

When you do NOT have a right angled triangle

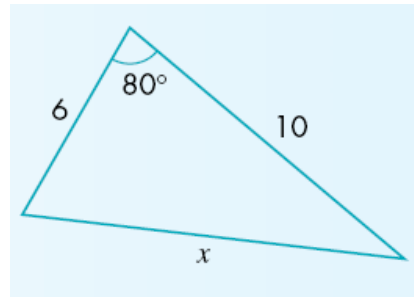
And the Sine Rule does not work

Why not try the Cosine Rule?

# The Cosine Rule

$$a^2 = b^2 + c^2 - 2bc \cos A$$

## 1) Finding a missing side



Find length x to 1 d.p.



**Now have a go at the following:**

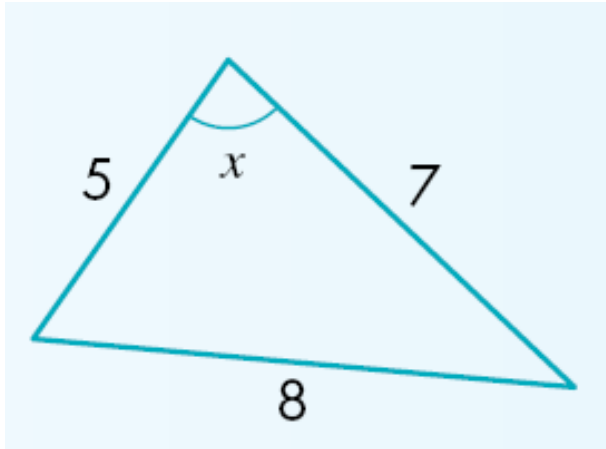
**Text book**

**p252 Ex19 Q1 - 6**

**For each question:**

- 1) Draw diagram and label it**
- 2) Write formula**
- 3) Show all working**

## 2) Finding a missing angle



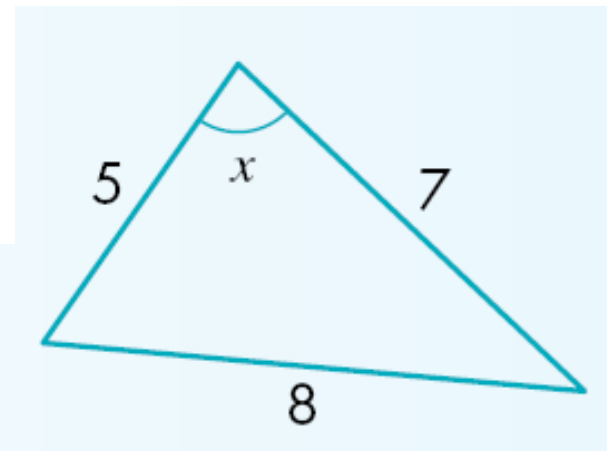
Find the angle marked  $x$

Find  $x$  in this triangle.

By the cosine rule

$$\cos x = \frac{5^2 + 7^2 - 8^2}{2 \times 5 \times 7} = 0.1428$$

$$\Rightarrow x = 81.8^\circ \quad (3 \text{ significant figures})$$



**Now have a go at the following:**

**Text book**

**p252 Ex19 Q11-20**

**For each question:**

- 1) Draw diagram and label it**
- 2) Write formula**
- 3) Show all working**