

Unit 7 – Trigonometry

The study of the relationships of sides and angles in triangles.

Day 1: Setting up right-triangle problems

Learning Goal

Labelling a Triangle

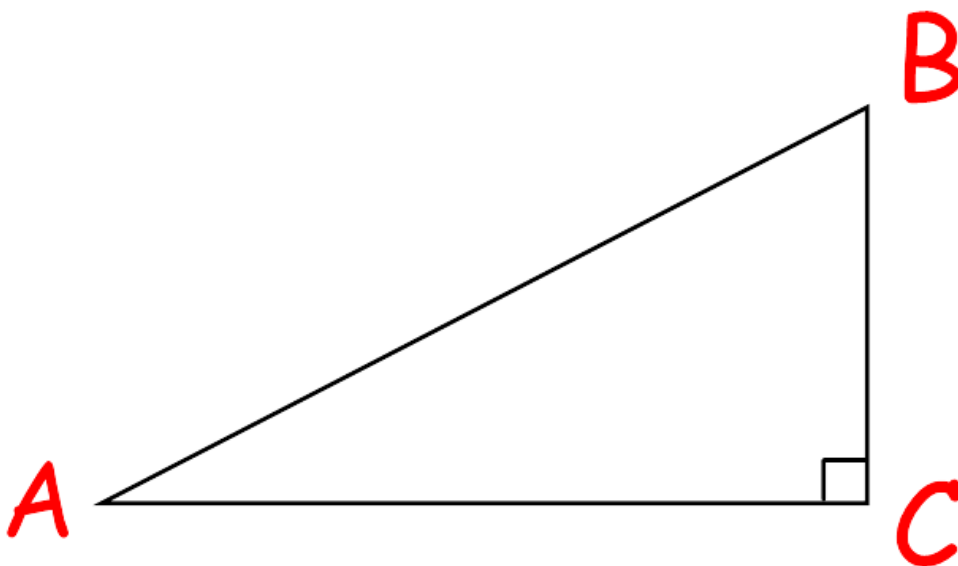
When we deal with triangles, we need to be able to properly label all of the sides and all of the _____.

Angles are labelled with _____

letters, _____ are labelled with

lower case letters. We always label sides

based on their _____ angles.



Reference Angles

When we are exploring _____

triangles, we typically have what is called a

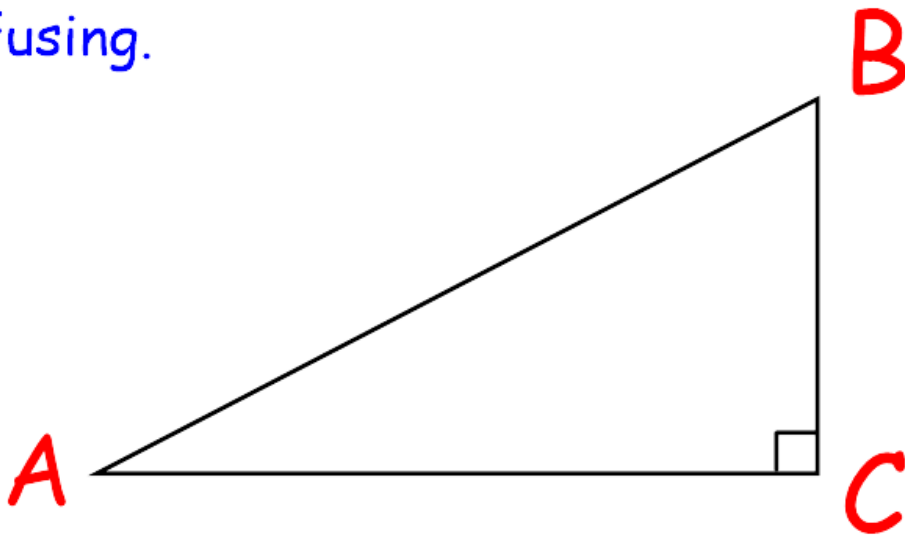
_____ angle.

We use a _____ angle

so that we can easily talk about different

sides of the triangle without it being

confusing.



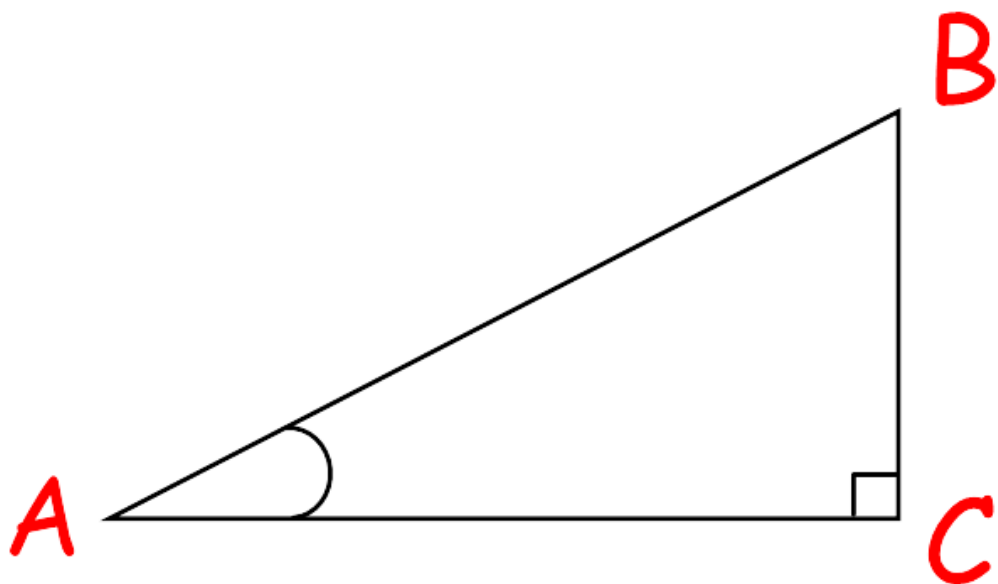
Reference Angles

Once we have chosen our _____

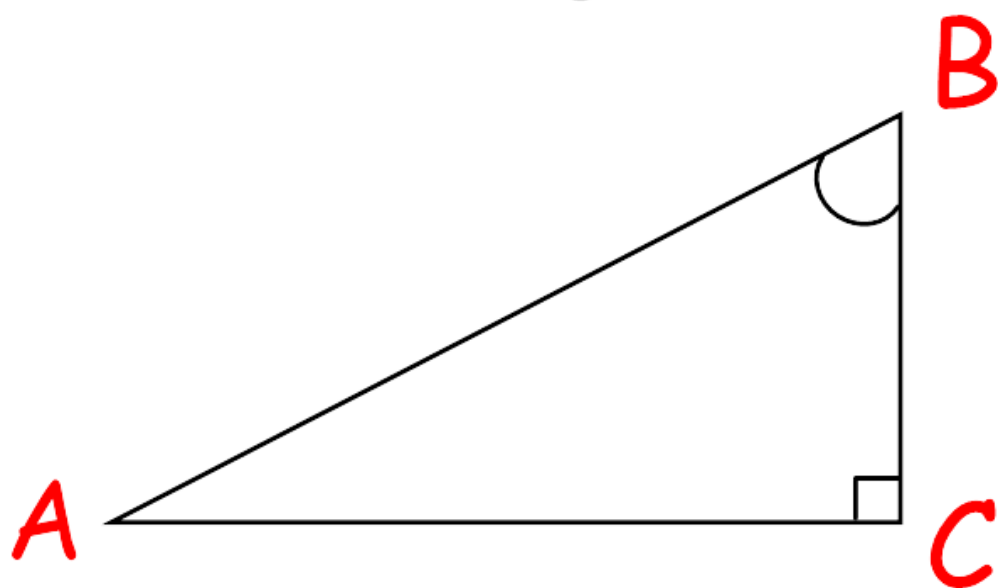
angle we can refer to the three sides of a

right triangle as the:

The Angle Monster



The Angle Monster

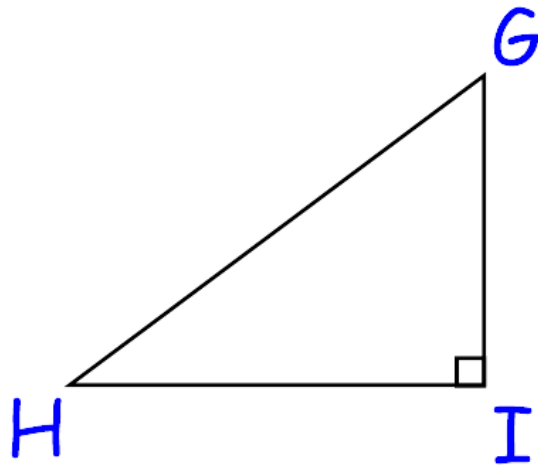


Reference Angles

opposite: _____

adjacent: _____

hypotenuse: _____



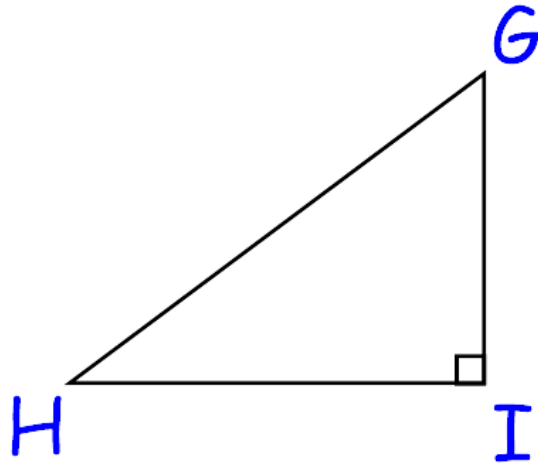
Reference Angles

Reference Angle: ____

opposite: ____

adjacent: ____

hypotenuse: ____

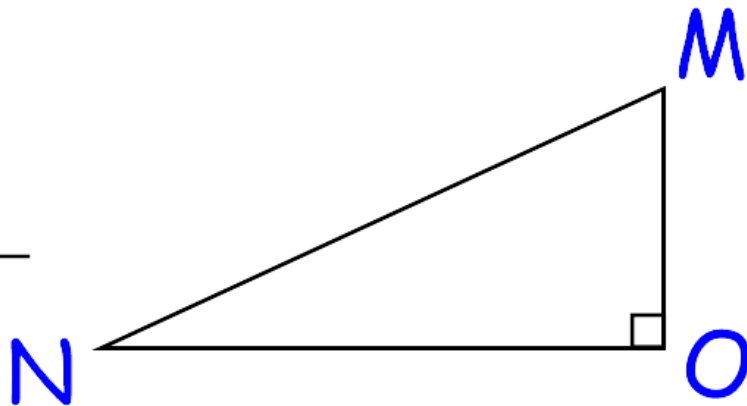


Reference Angle: ____

opposite: ____

adjacent: ____

hypotenuse: ____



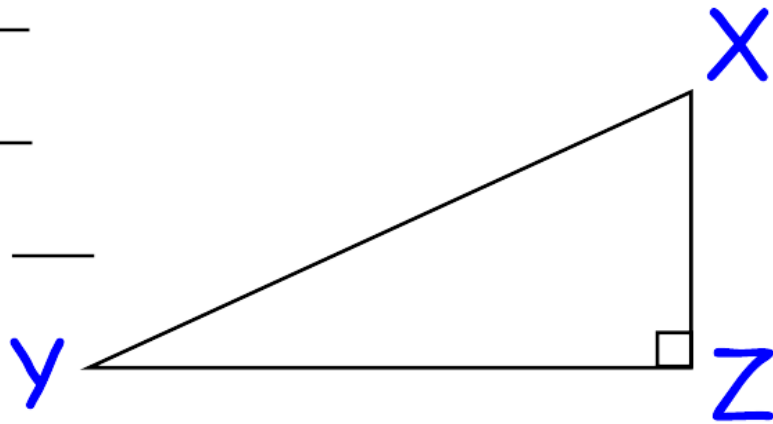
Reference Angles

Reference Angle: **Z**

opposite: ____

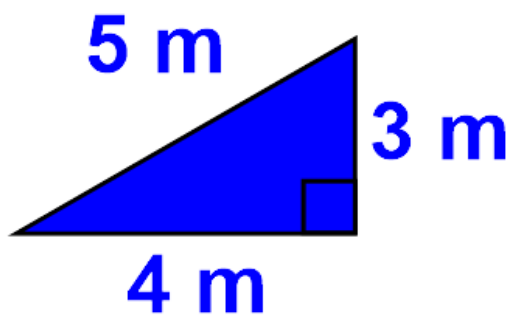
adjacent: ____

hypotenuse: ____



Part 2

The Trigonometric Ratios

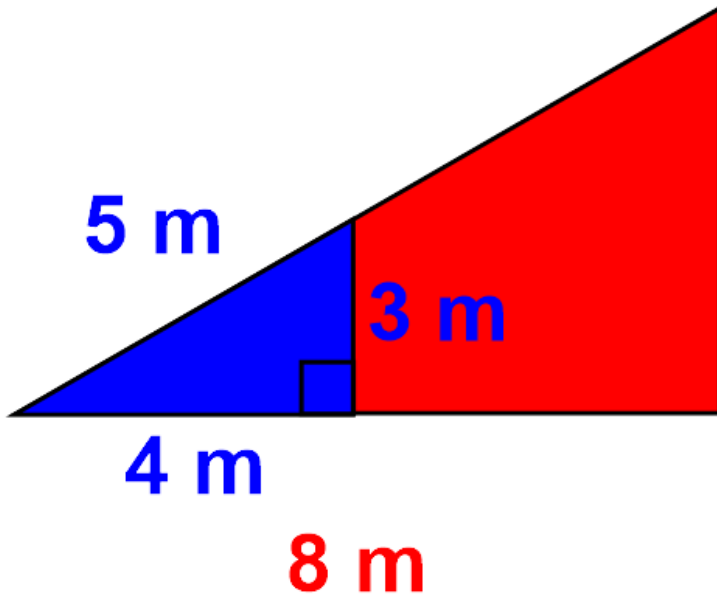


Ratios of Sides

$$\frac{\textit{opposite}}{\textit{hypotenuse}}$$

$$\frac{\textit{adjacent}}{\textit{hypotenuse}}$$

$$\frac{\textit{opposite}}{\textit{adjacent}}$$

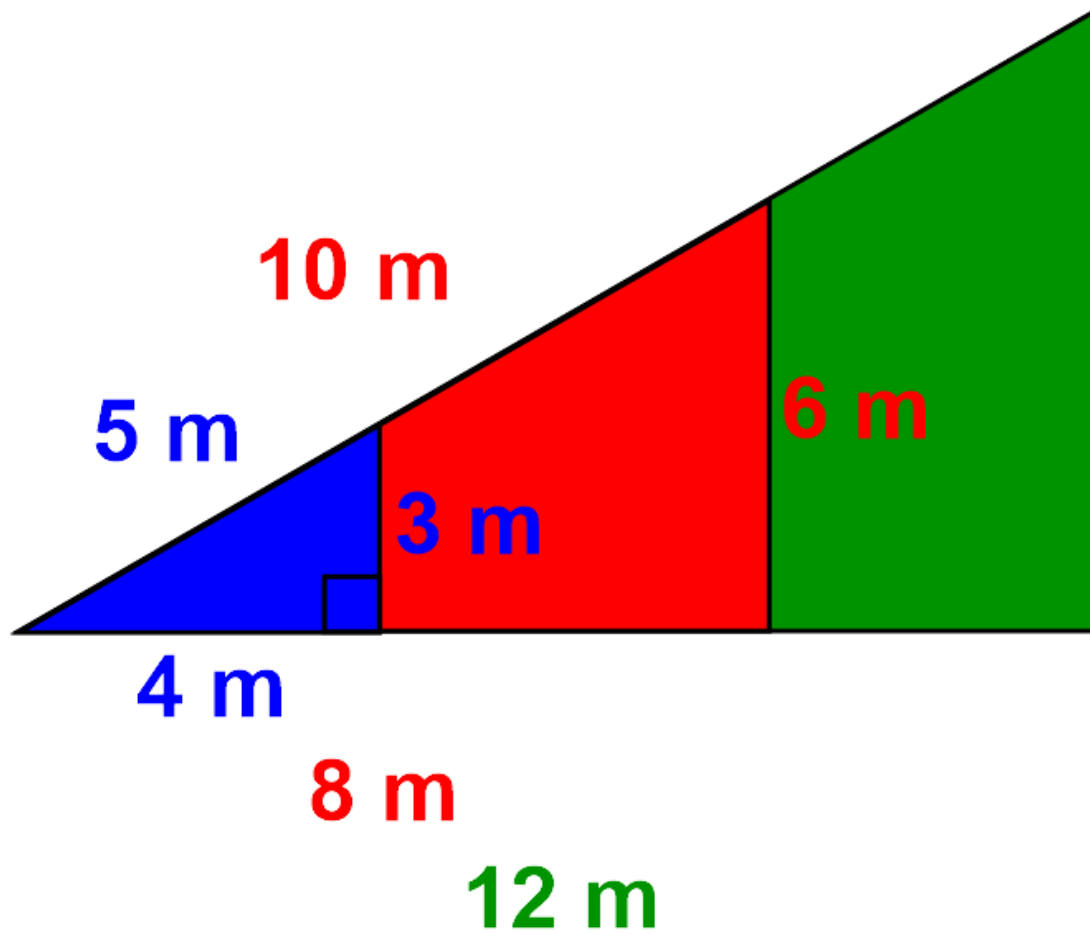


Ratios of Sides

$$\frac{\textit{opposite}}{\textit{hypotenuse}}$$

$$\frac{\textit{adjacent}}{\textit{hypotenuse}}$$

$$\frac{\textit{opposite}}{\textit{adjacent}}$$



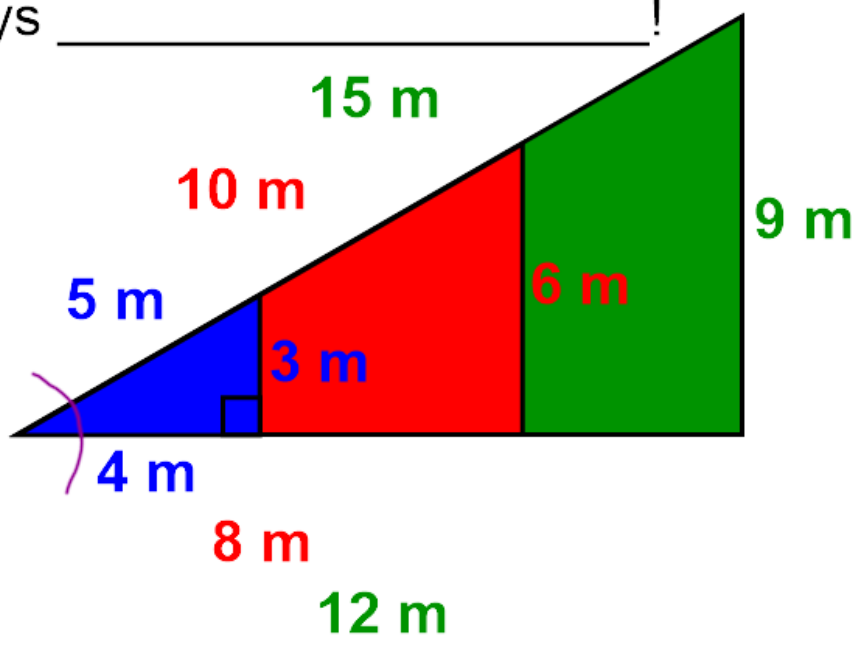
Ratios of Sides

$$\frac{\textit{opposite}}{\textit{hypotenuse}}$$

$$\frac{\textit{adjacent}}{\textit{hypotenuse}}$$

$$\frac{\textit{opposite}}{\textit{adjacent}}$$

For any given reference angle, the ratios of the sides (opposite, adjacent, hypotenuse) are always _____!



Ratios of Sides

$$\frac{\textit{opposite}}{\textit{hypotenuse}}$$

$$\frac{\textit{adjacent}}{\textit{hypotenuse}}$$

$$\frac{\textit{opposite}}{\textit{adjacent}}$$



These ratios are so special that they have been given special names!

Do you remember what they are???

Ratios of Sides

$$\frac{\textit{opposite}}{\textit{hypotenuse}}$$

$$\frac{\textit{adjacent}}{\textit{hypotenuse}}$$

$$\frac{\textit{opposite}}{\textit{adjacent}}$$

The Trigonometric Ratios

$$\sin(\text{angle}) = \underline{\hspace{4cm}}$$

The "**sine**" of an angle tells you the ratio of the side _____ the angle to the _____.

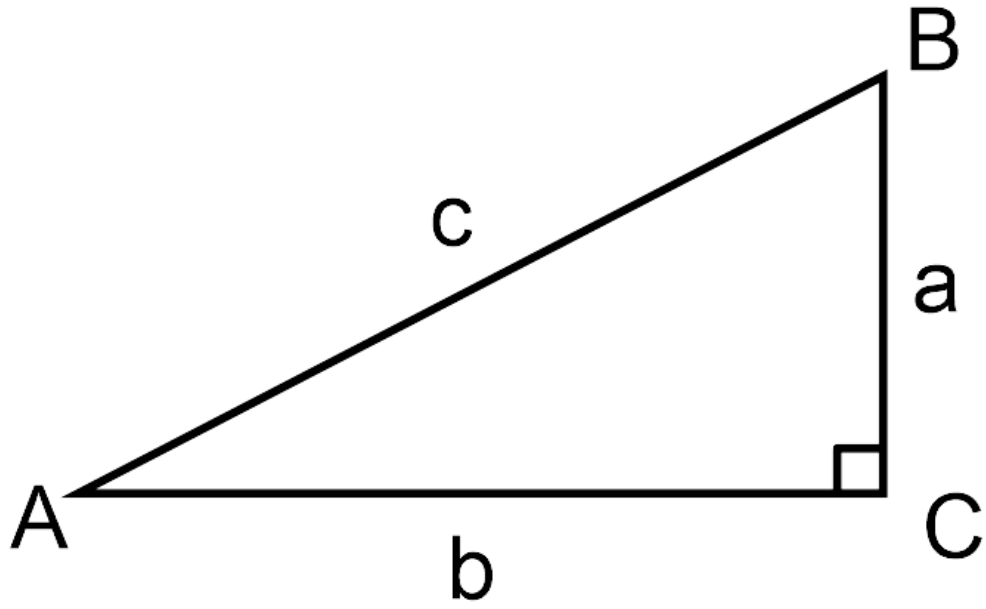
$$\cos(\text{angle}) = \underline{\hspace{4cm}}$$

The "**cosine**" of an angle tells you the ratio of the side _____ the angle to the _____.

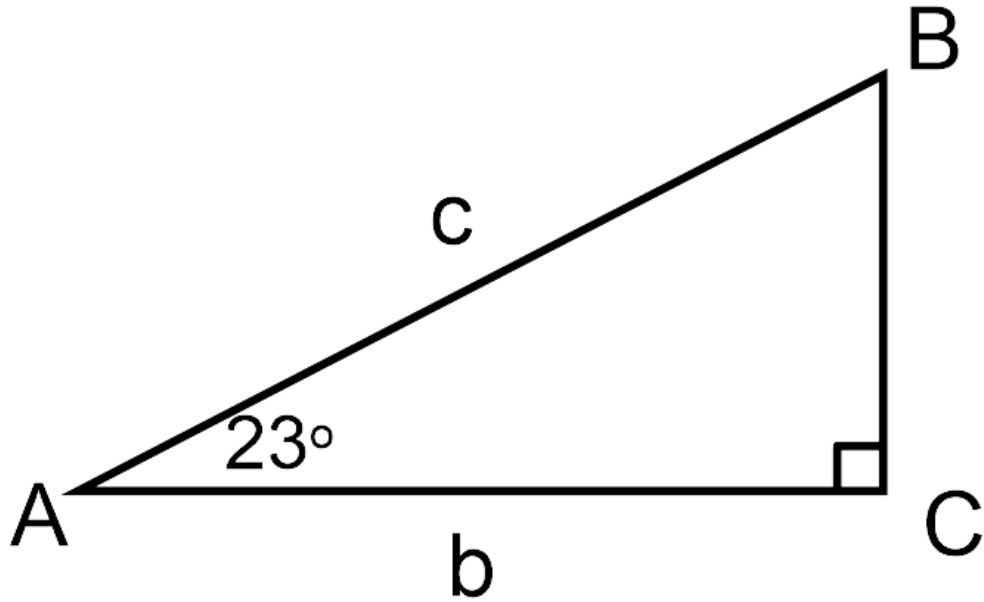
$$\tan(\text{angle}) = \underline{\hspace{4cm}}$$

The "**tangent**" of an angle tells you the ratio of the side _____ the angle to the side _____ the angle.

The Ratios



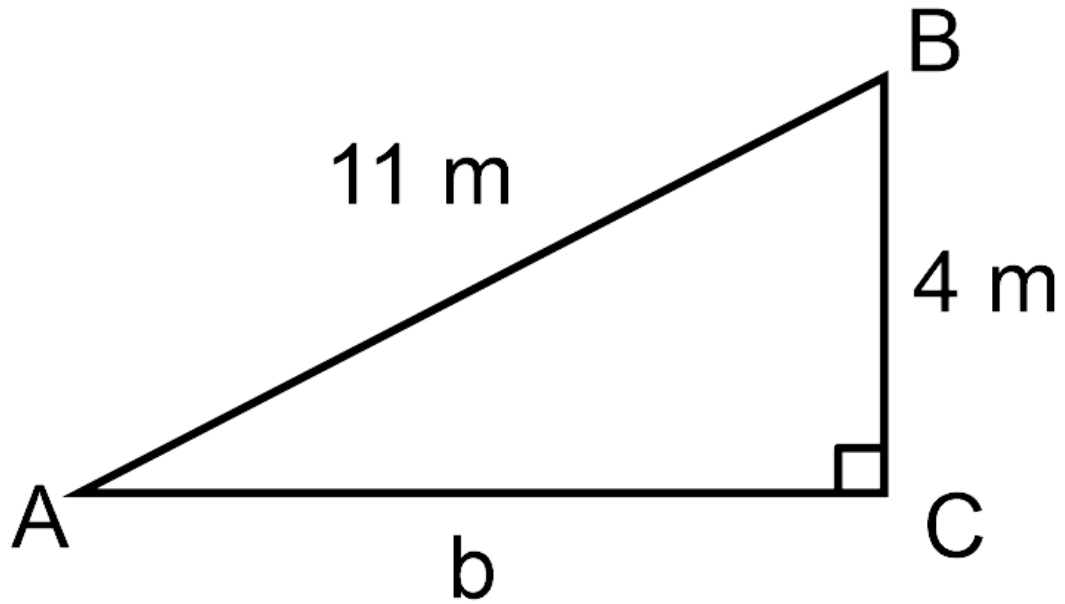
The Ratios



Solve for side b

Solve for side c

The Ratios



Solve for angle A

Solve for angle B