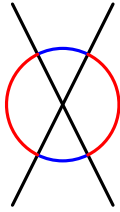


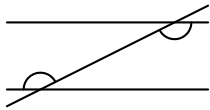
Similar Angles

When two lines cross, there are two sets of equal angles.

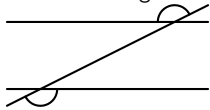


Notes

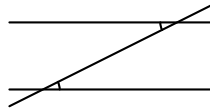
Similar Angles and Parallel lines



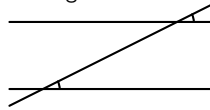
Alternate interior angles



Alternate exterior angles



Corresponding angles



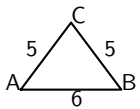
Corresponding angles

Notes

Similar Triangles

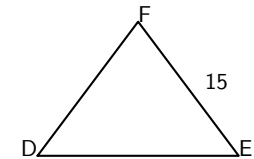
Two triangles are **similar** if

- Corresponding angles have the same measure.
- Corresponding sides are proportional.



dimensions of $\triangle ABC$ to find side DE .

We can use the following ratio:



Triangles $\triangle ABC$ and $\triangle DEF$ are similar. We can use the

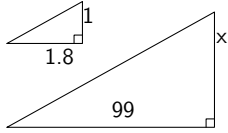
$$\begin{aligned}\frac{AB}{CB} &= \frac{DE}{FE} \\ \frac{6}{5} &= \frac{DE}{15} \\ 15 \times \frac{6}{5} &= DE \\ 18 &= DE\end{aligned}$$

Notes

Finding Heights of Objects

We can use similar triangles to find the heights of objects. If a one meter yard stick casts a shadow that is 1.8 meters long, and a flagpole casts a shadow that is 99 meters long, how tall is the flagpole?

Step 1: Draw a picture:



Step 2: Set up the proportions and solve:

$$\begin{aligned}\frac{1}{1.8} &= \frac{x}{99} \\ 99 \cdot \frac{1}{1.8} &= x \\ 55 &= x\end{aligned}$$

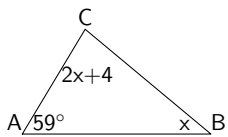
The flagpole is 55m tall.

Notes

Angles in Triangles

The three angles in a triangle always add up to 180°

For the following triangle, find the measure of angles B and C :



$$\begin{aligned}180^\circ &= 59^\circ + x^\circ + (2x + 4)^\circ \\ 180^\circ &= 63^\circ + 3x^\circ \\ 117^\circ &= 3x^\circ \\ 39^\circ &= x^\circ\end{aligned}$$

Therefore B has measure 39° and C has measure 82° .

Notes

Notes