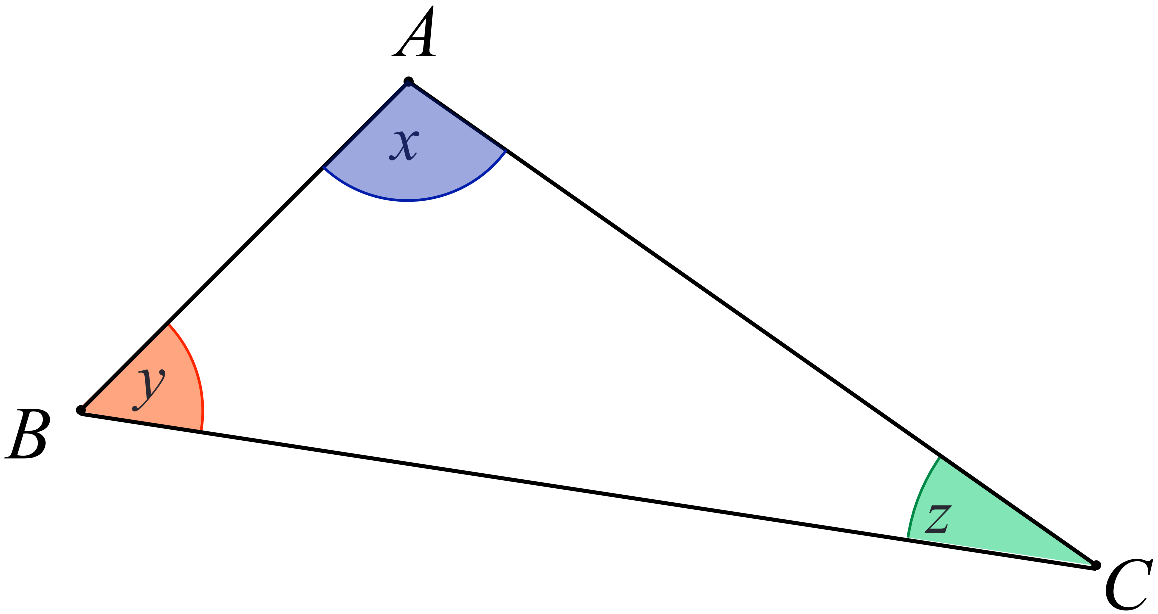
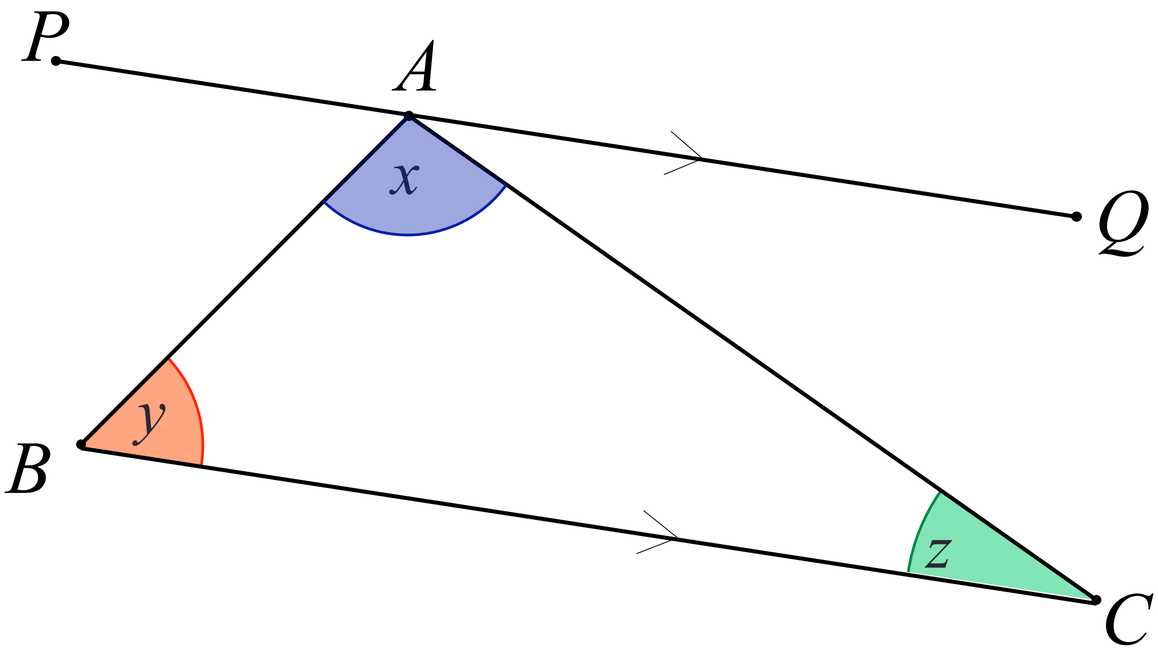
The Angle Sum of a Triangle

Prove that $x + y + z = 180°$

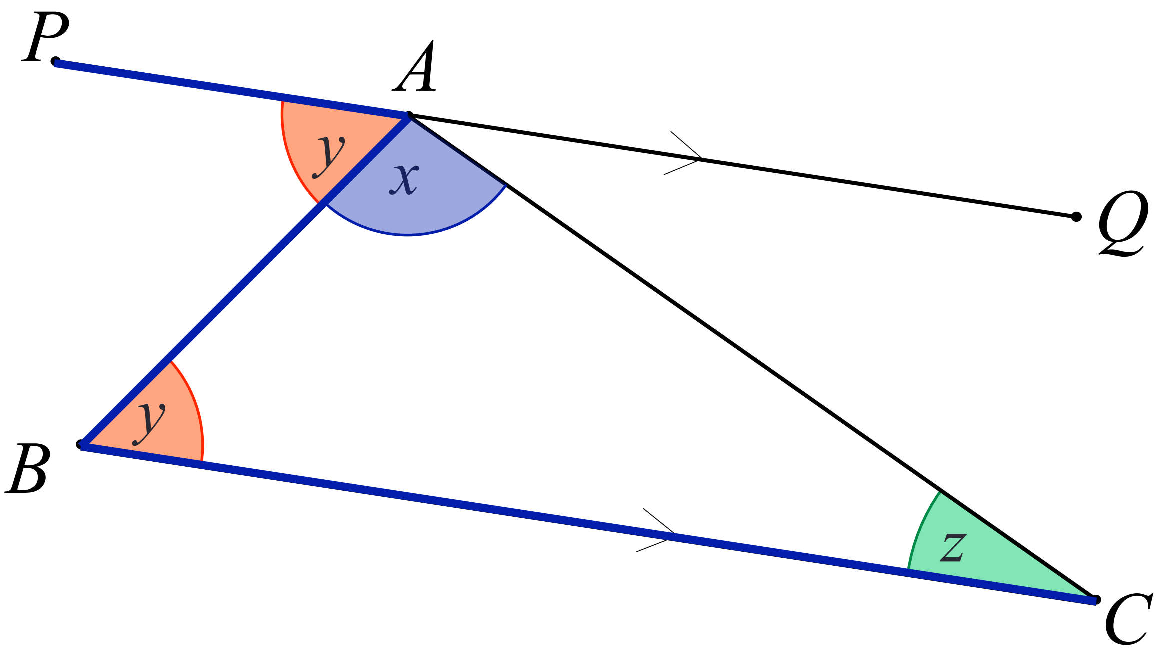


Construct *PQ* through *A* so that *PQ*||*BC*



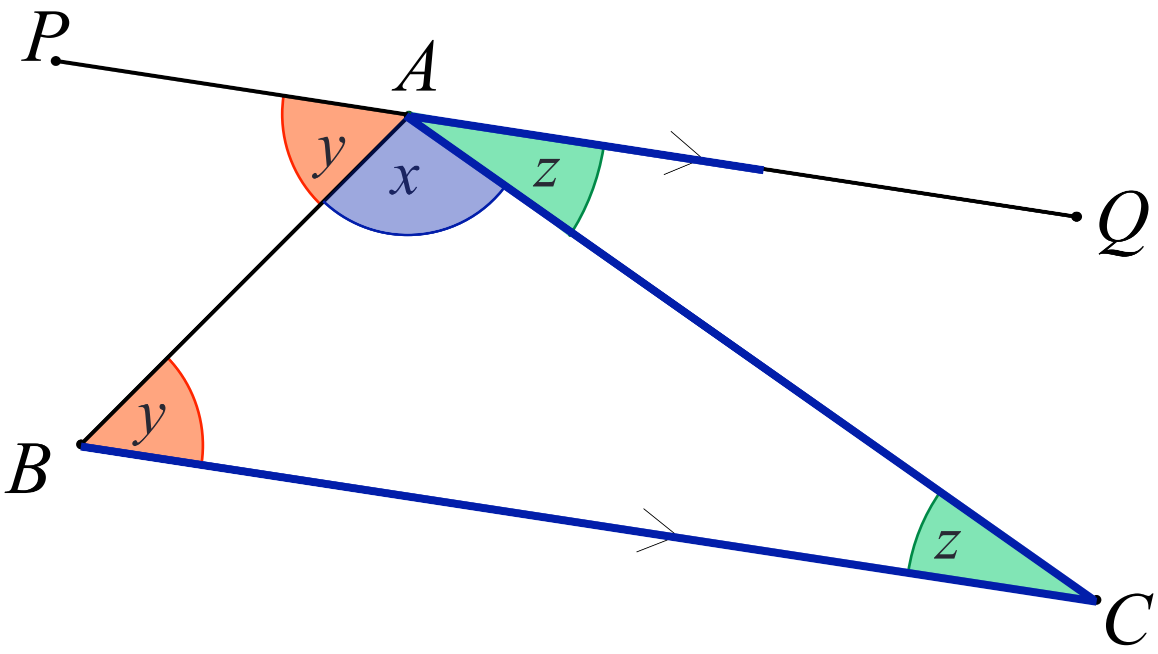
$\angle PAB = y°$

(alternate angles, $PQ || BC$)

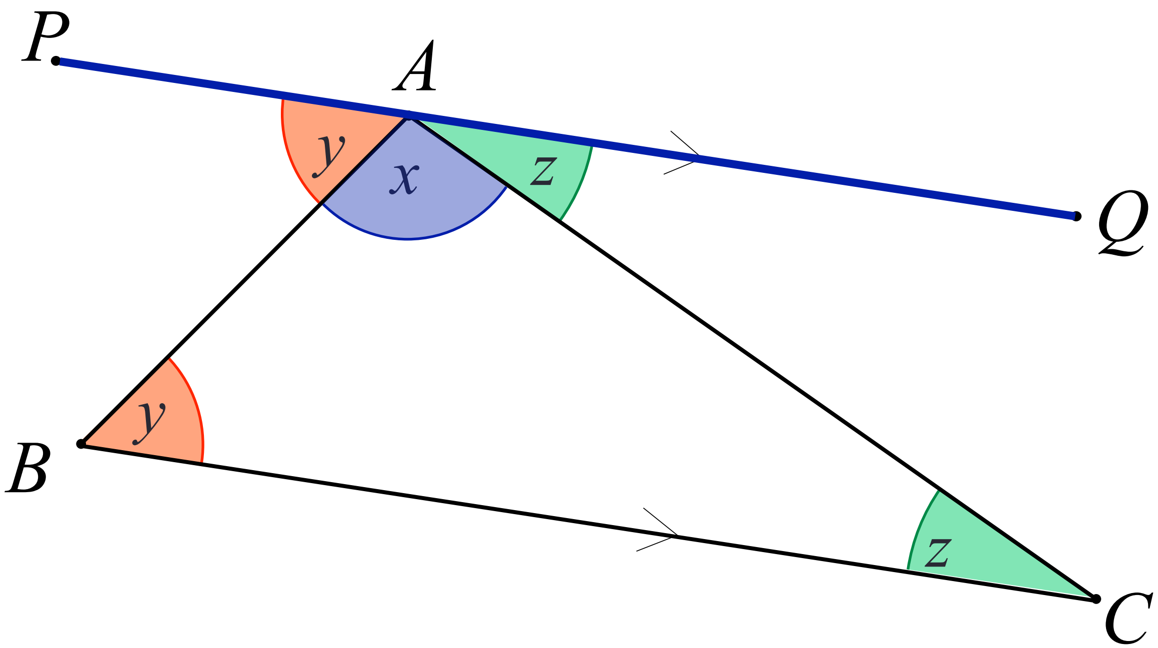


$\angle QAC = z°$

(alternate angles, $PQ \| BC$)

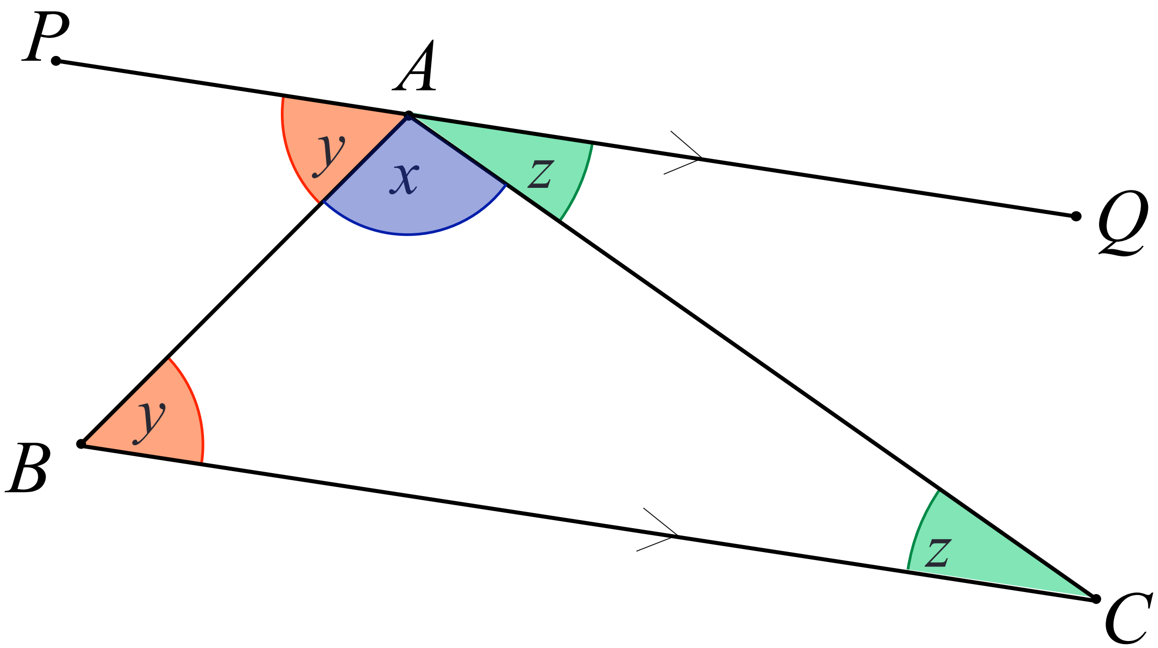


Now *PAQ* is a straight line

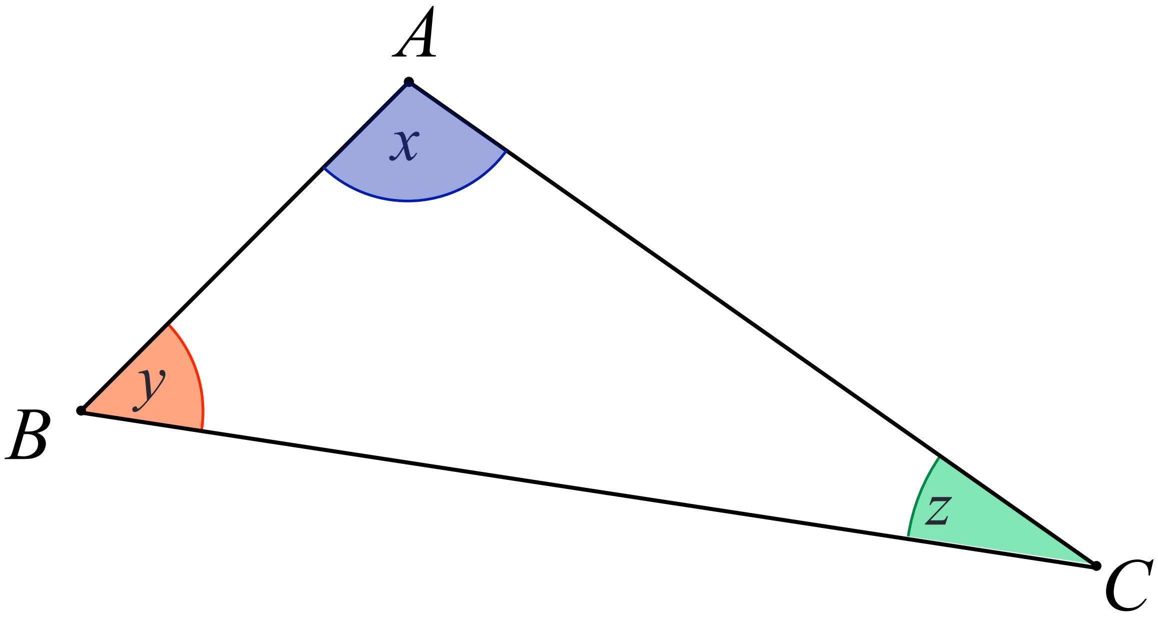


$x + y + z = 180°$

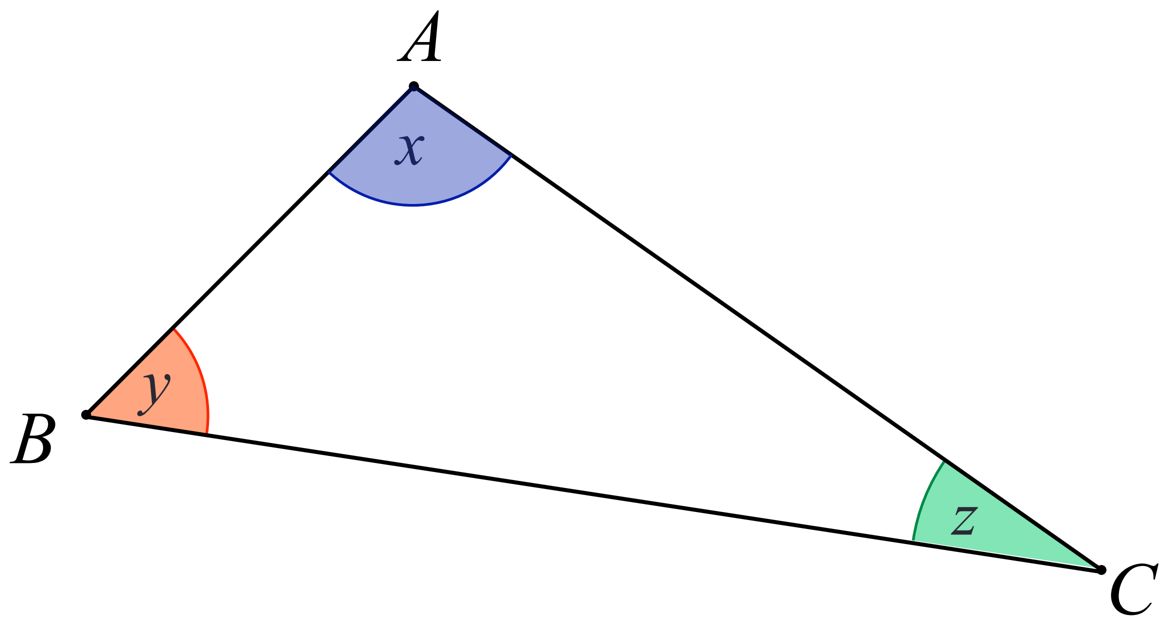
(PAQ is a straight line)



$$x + y + z = 180°$$

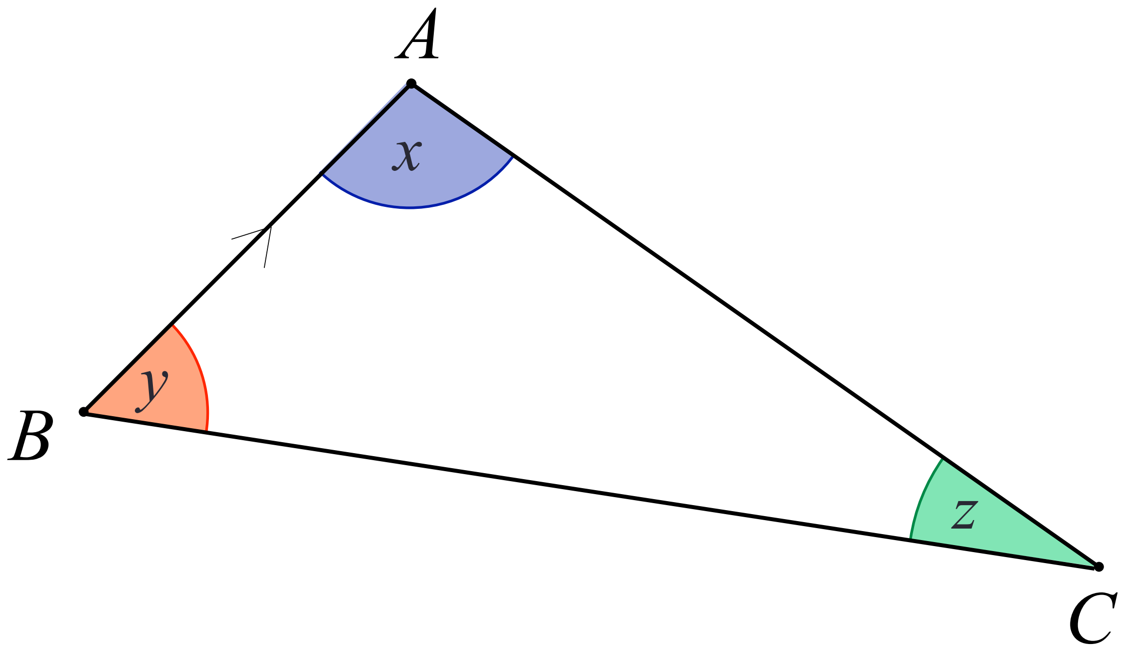


The angle sum of a triangle is 180°

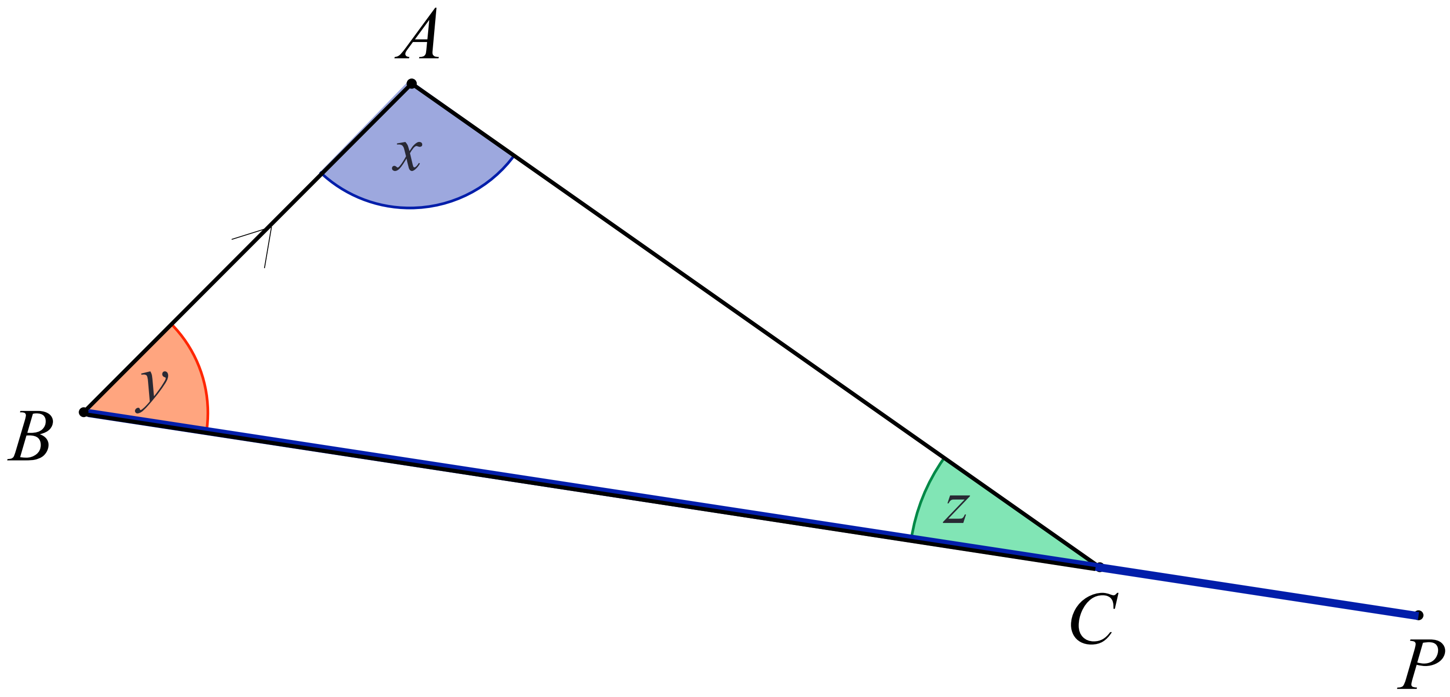


A different proof for the same result

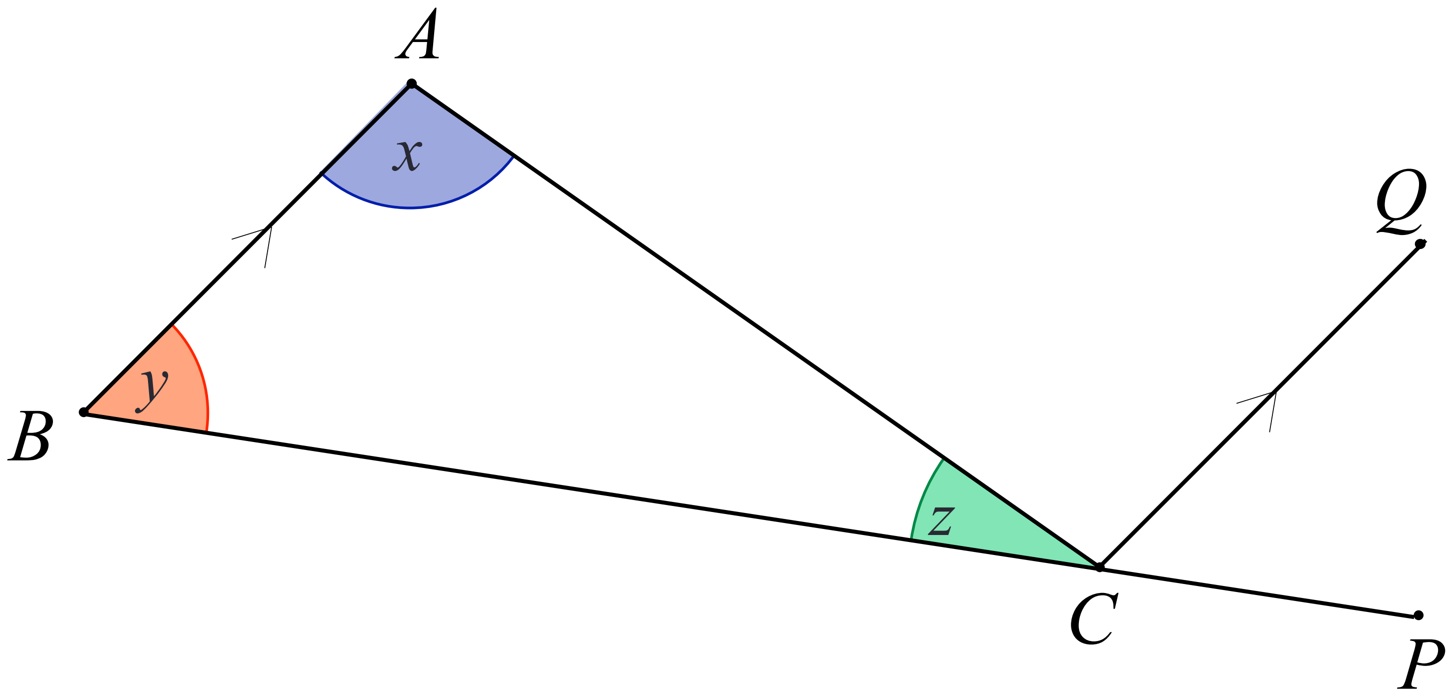
Prove that $x + y + z = 180°$



Produce *BC* to *P*

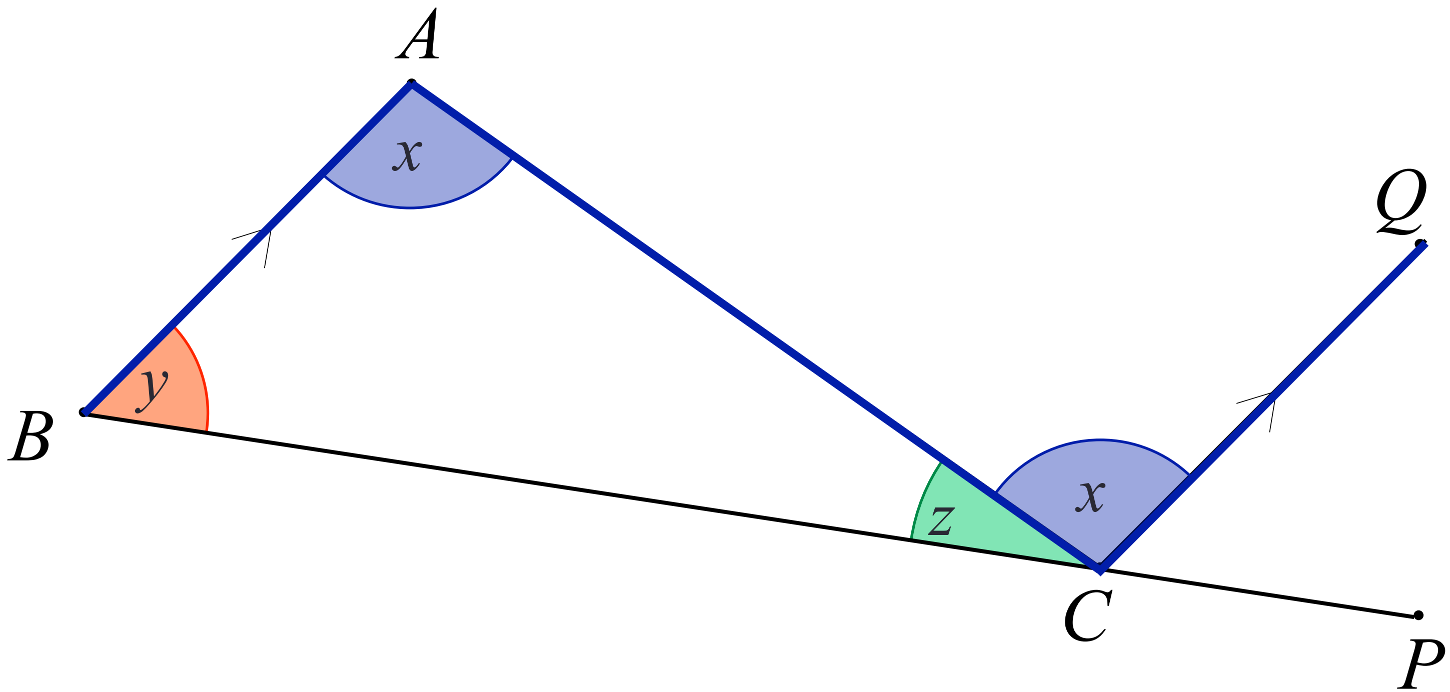


At C construct $CQ||BA$



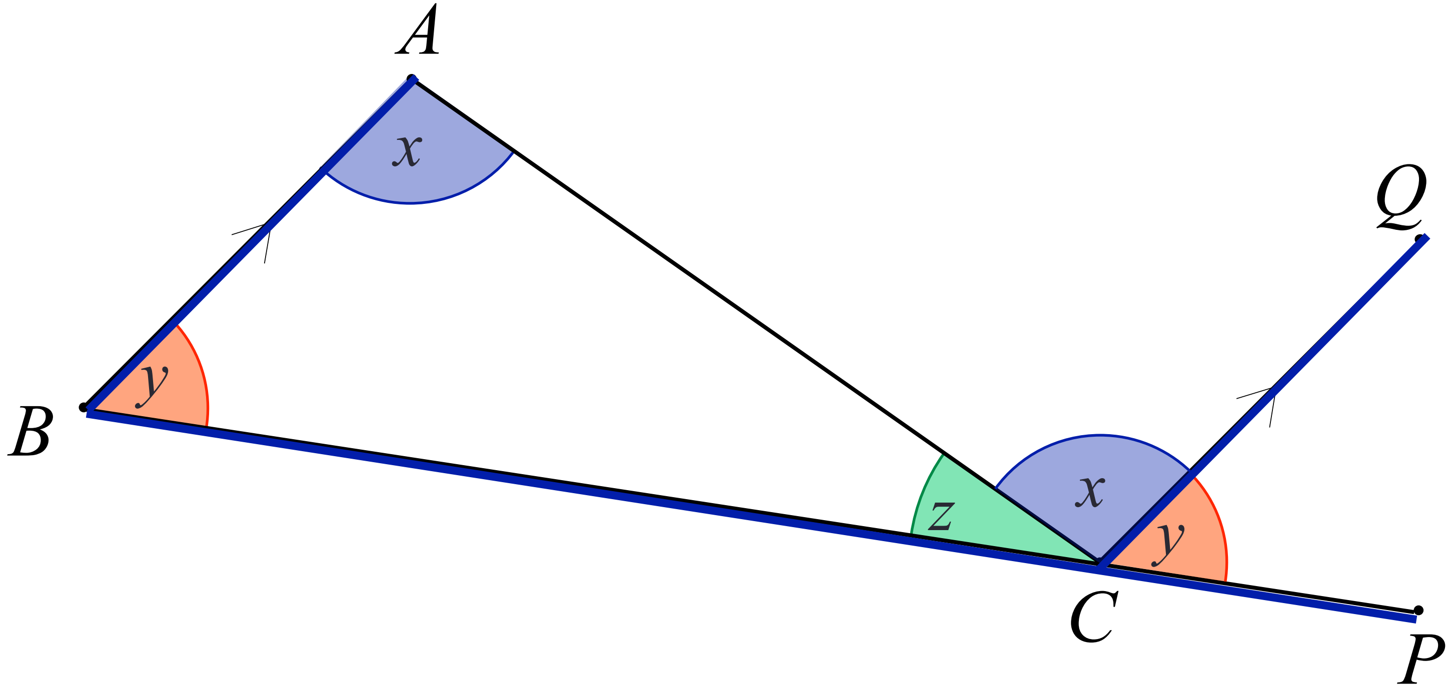
$\angle ACQ = x°$

(alternate angles, $PQ || BC$)

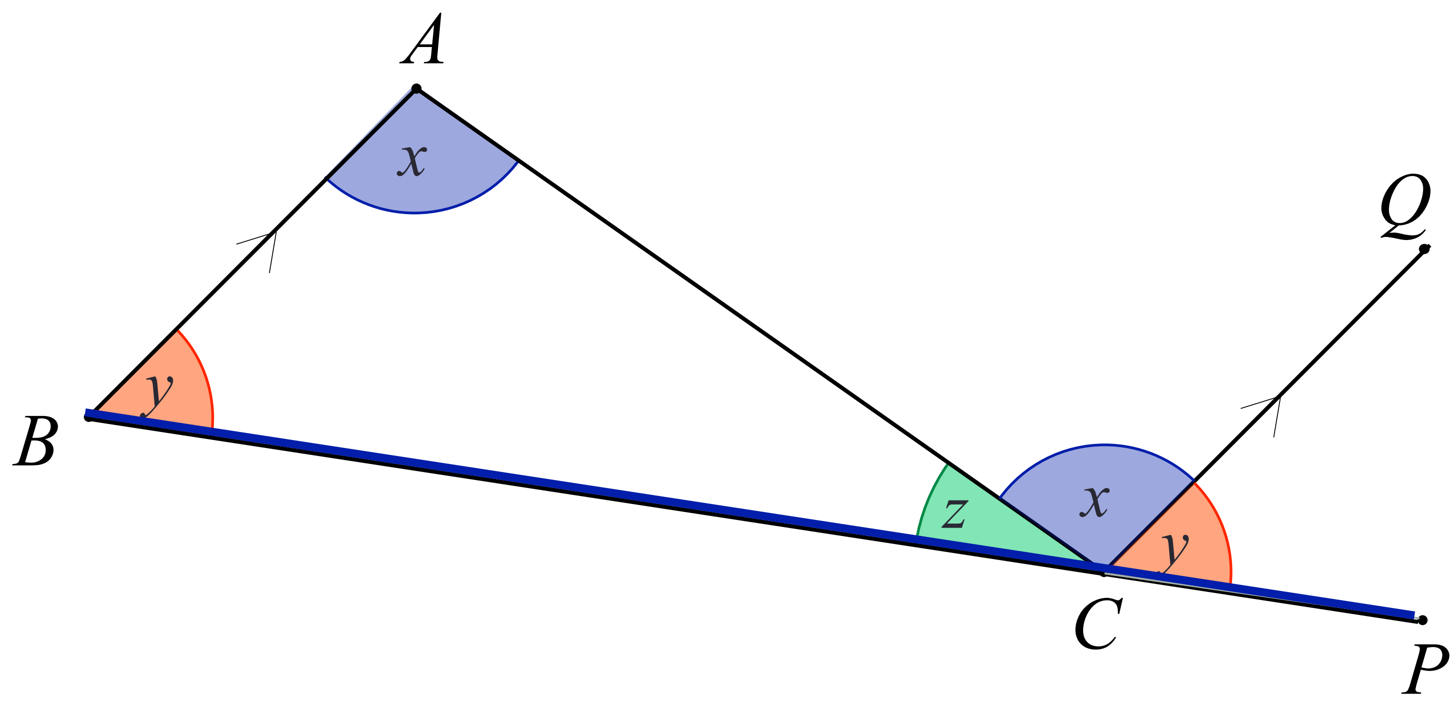


$\angle PCQ = y°$

(corresponding angles, $PQ \| BC$)

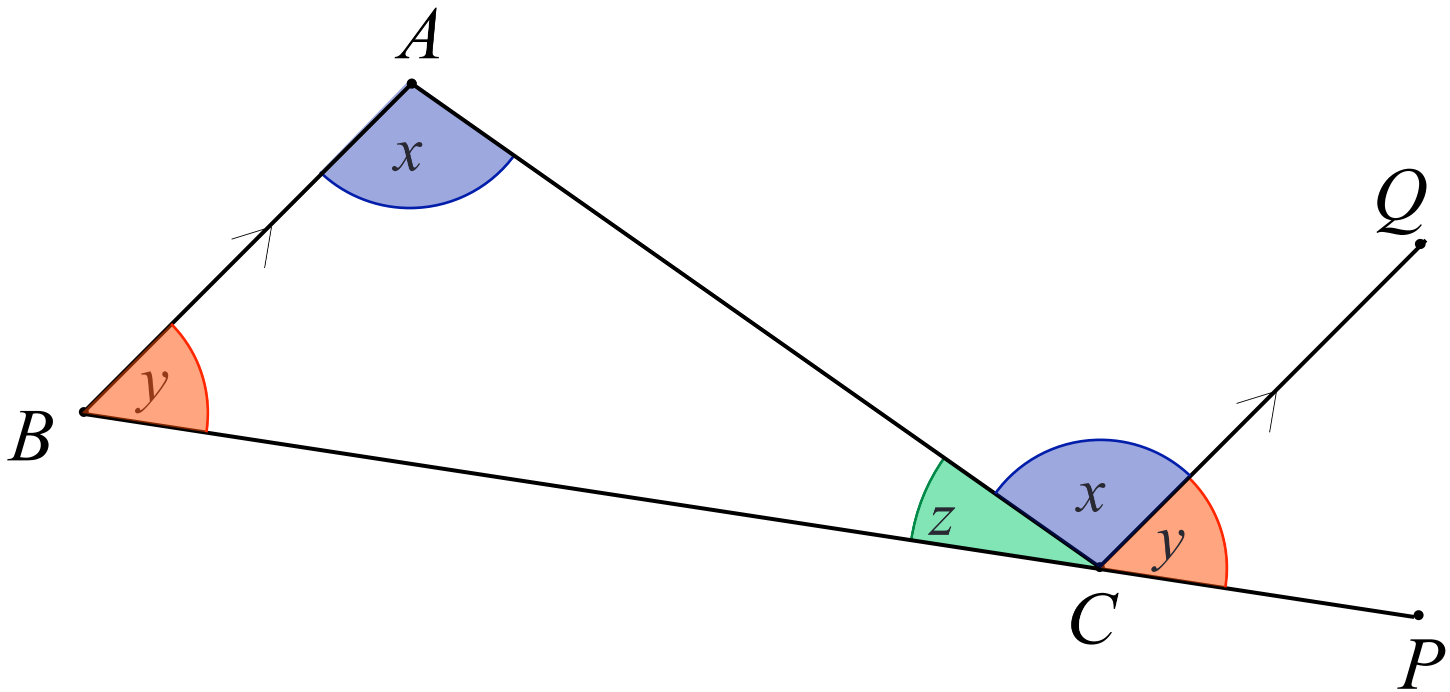


Now *BCP* is a straight line

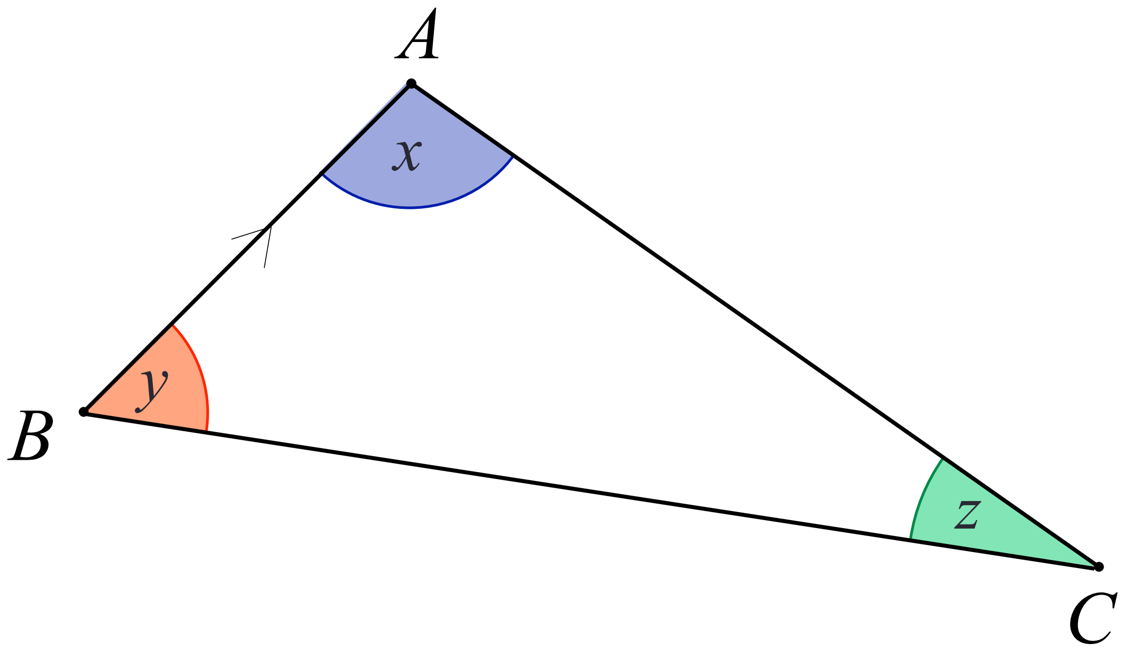


$x + y + z = 180°$

(BCP is a straight line)



$$x + y + z = 180°$$



The angle sum of a triangle is 180°