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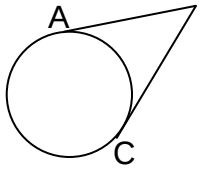
Perimeter of Polygons with Inscribed Circles - Guided Lesson Explanation

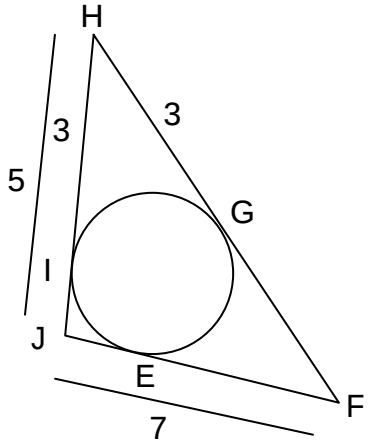
Explanation#1

If A and C are two point on a circle and AB and BC are tangent to the circle, then AB and BC are congruent.



We have to find the unknown segment lengths

HI and HG are tangent to the inscribed circle from H. so, HI is congruent to GH. HI = GH = 3.



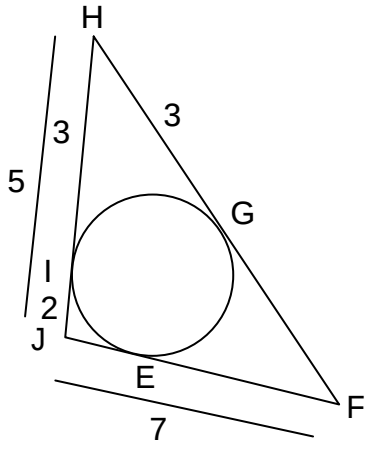
We know that HI and HJ. We have use additive property of length to write an equation and find IJ

HI + IJ = HJ

3 + IJ = 5

IJ = 2

So, IJ is 2



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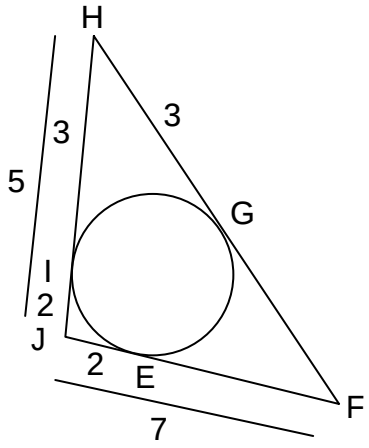
EJ and IJ are tangents to the inscribed circle from E. so, EJ is congruent to IJ. EJ = IJ = 2



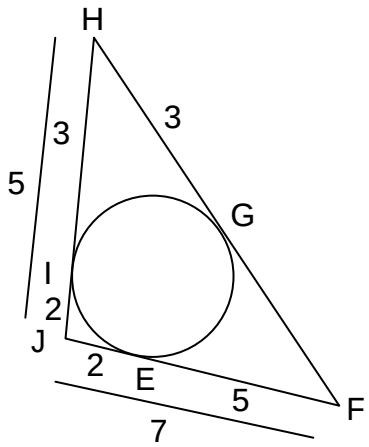
We know that EJ and FJ. We have use the additive property of write an equation and find EF.

EJ + EF = FJ

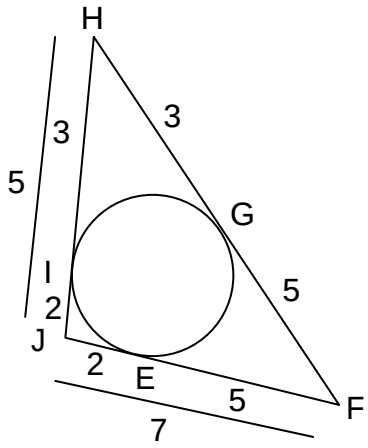
2 + EF = 7

EF = 5

So, EF is 5



FG and EF are tangent to the inscribed circle from F. so, FG is congruent to EF. FG = EF = 5



So FG = 5.

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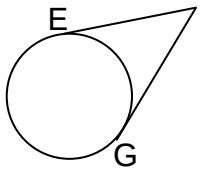
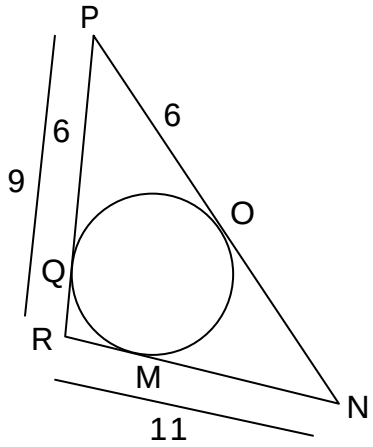
Explanation#2

If E and G are two point on a circle and EF and FG are tangent to the circle, then EF and FG are congruent.



We have to find the unknown segment lengths

PQ and PO are tangent to the inscribed circle from P. So, PQ is congruent to OP. PQ = OP = 6.



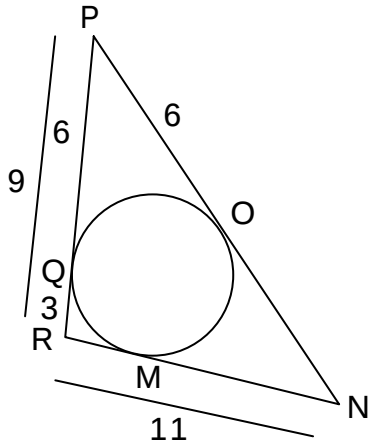
We know that PQ and PR. We have use additive property of length to write an equation and find QR

PQ + QR = PR

6 + QR = 9

QR = 3

So, QR is 3



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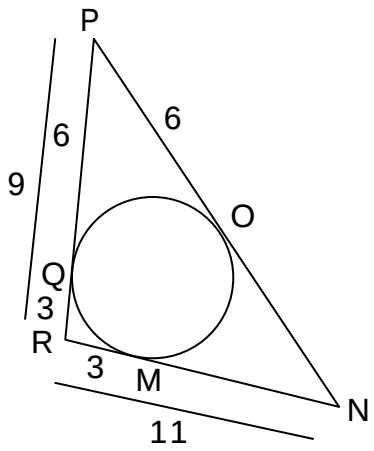
MR and QR are tangents to the inscribed circle from M. so, MR is congruent to QR. MR = QR = 3



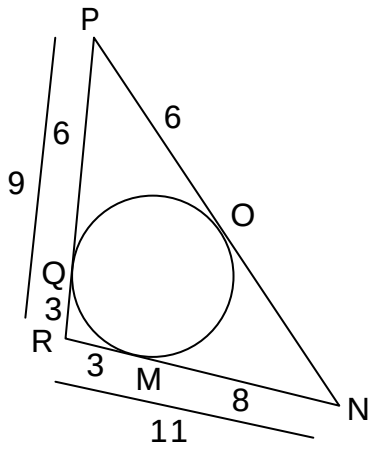
We know that MR and MN. We have use the additive property of write an equation and find MN.

MR + MN = NR

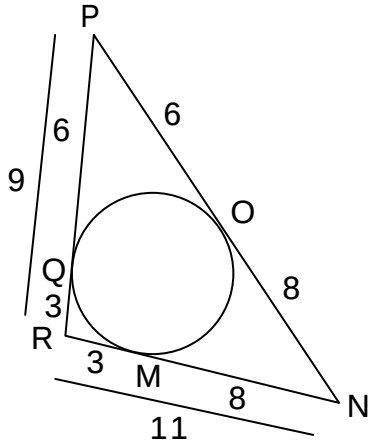
3 + MN = 11

MN = 8

So, MN is 8



NO and MN are tangent to the inscribed circle from F. so, NO is congruent to MN. NO = MN = 8



So NO = 8.

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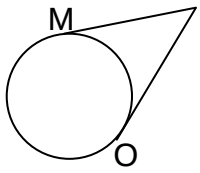
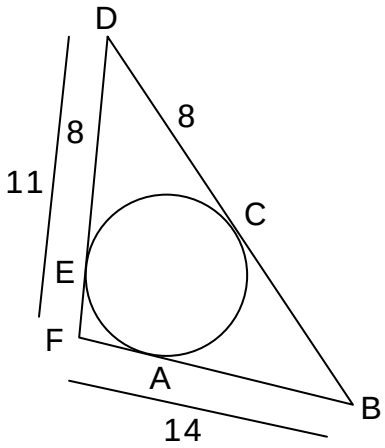
Explanation#3

If M and O are two point on a circle and MN and NO are tangent to the circle, then MN and NO are congruent.



We have to find the unknown segment lengths

DE and DC are tangent to the inscribed circle from D. So, DE is congruent to CD. DE = CD = 8.



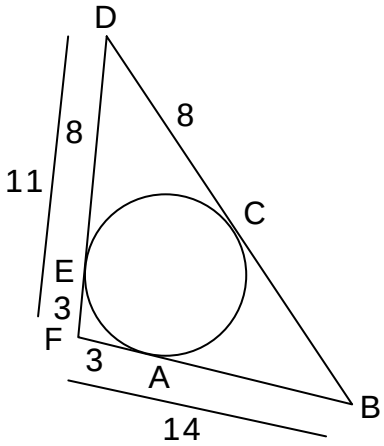
We know that DE and DF. We have use additive property of length to write an equation and find EF

DE + EF = DF

8 + EF = 11

EF = 3

So, EF is 3



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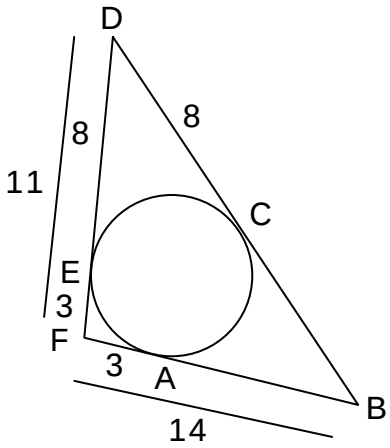
AF and EF are tangents to the inscribed circle from A. so, AF is congruent to EF. AF = EF = 3



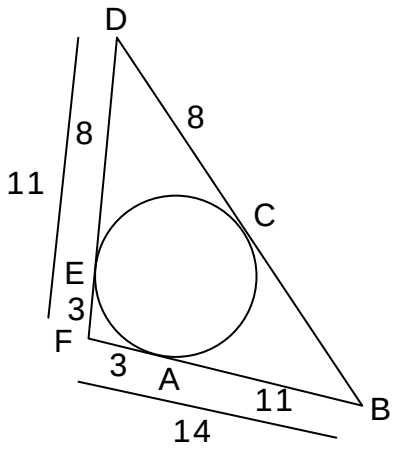
We know that AF and AB. We have use the additive property of write an equation and find AB.

AF + AB = BF

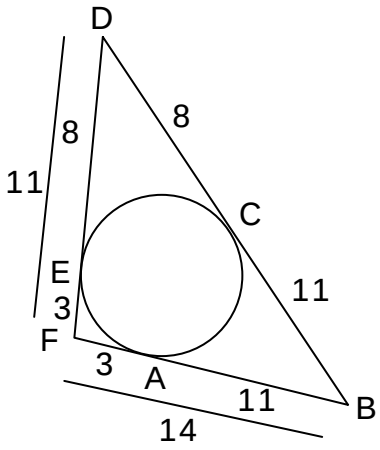
3 + AB = 14

AB = 11

So, AB is 11



BC and AB are tangent to the inscribed circle from F. so, BC is congruent to AB. BC = AB = 11



So BC = 11.