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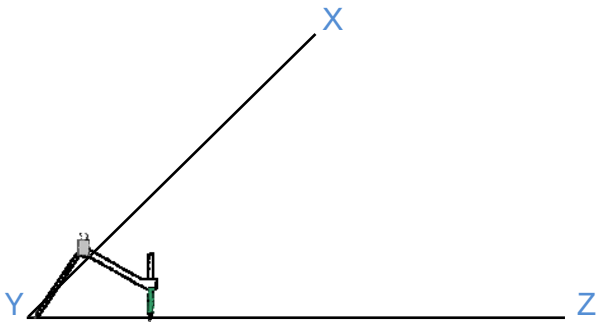
Making Bisectors of Angles and Lines - Guided Lesson Explanation

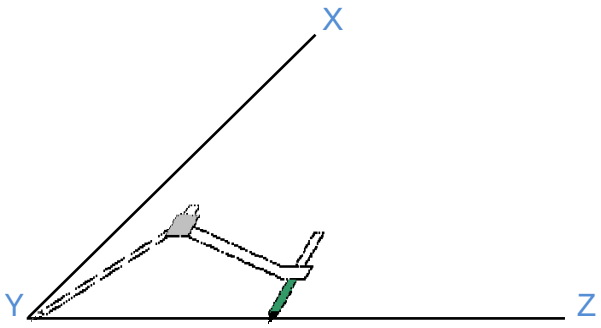
Explanation#1

Bisecting an angle is slightly different.

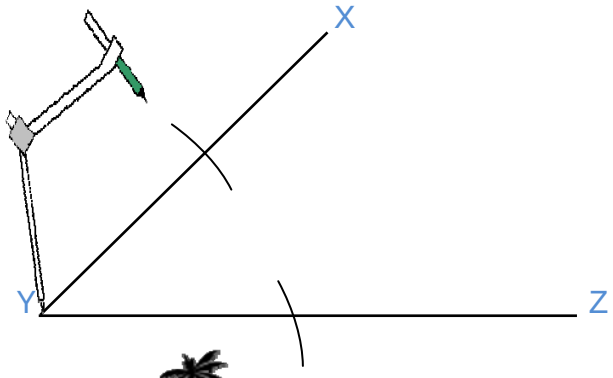
(1) Time to break out your compass. Place the compass's sharp point on the angle's vertex Y.



(2) Adjust the compass to cover about half of a line.



(3) Keep the width of the compass set; lock it if possible. Draw an arc across each leg of the angle.



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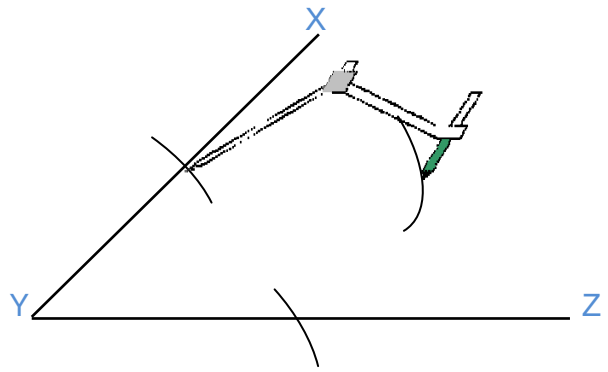
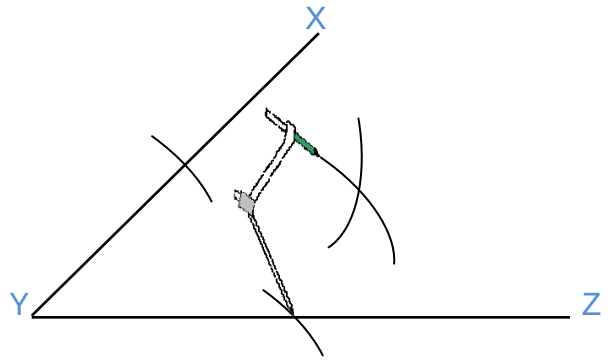
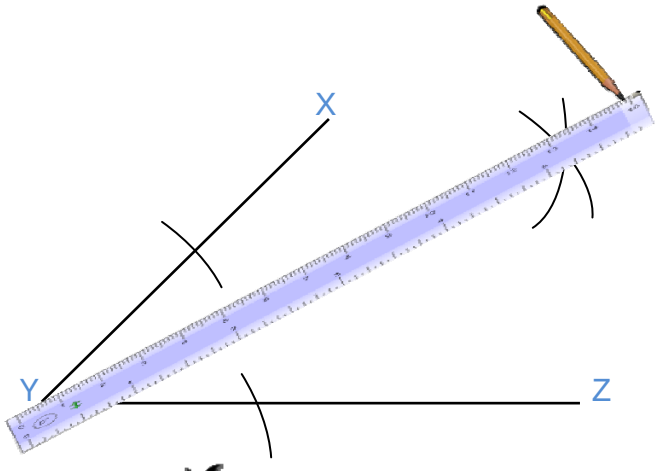
4. Place the compass on one point where the arc crosses a leg. Draw an arc that is on the interior of the angle.



6. Don't change the width of the compass. Put your compass point on the other leg-point and make another arch.



7. Grab a ruler and draw a line from the vertex of the angle to the point where the arcs meet.



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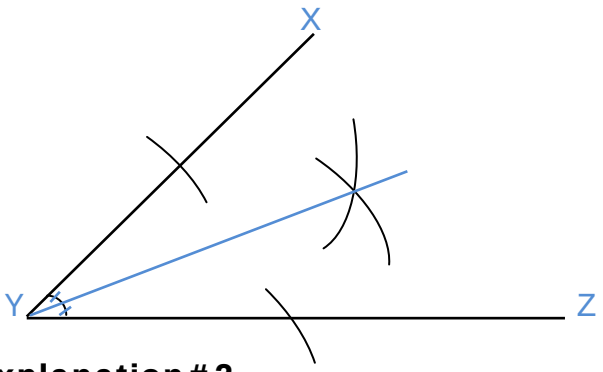
This is the bisector of the angle ∠XYZ.

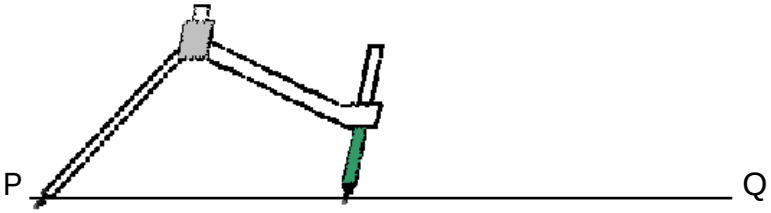


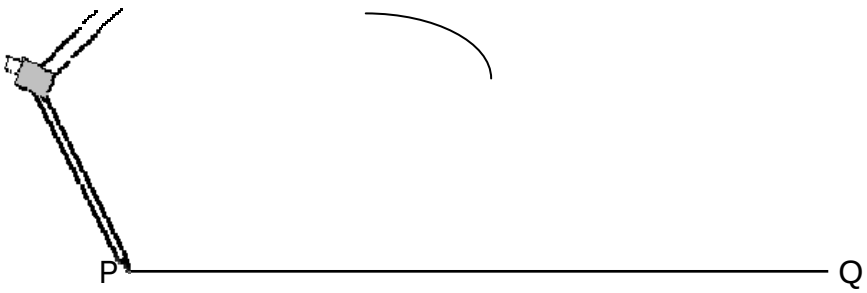
Explanation # 2

The basic approach is to use a straightedge to draw a line between the points where the arcs intersect.

P ——————————————— Q

Place you compass point on one of the points and extend it about half the length of the line.





Extend the compass and create an arch above and below the line.

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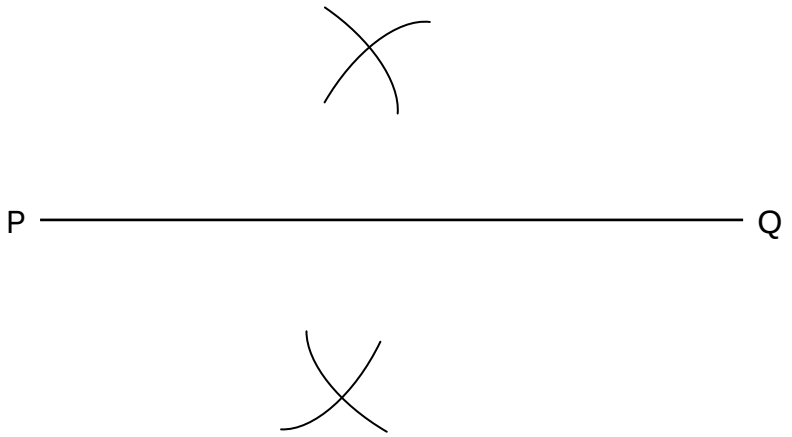
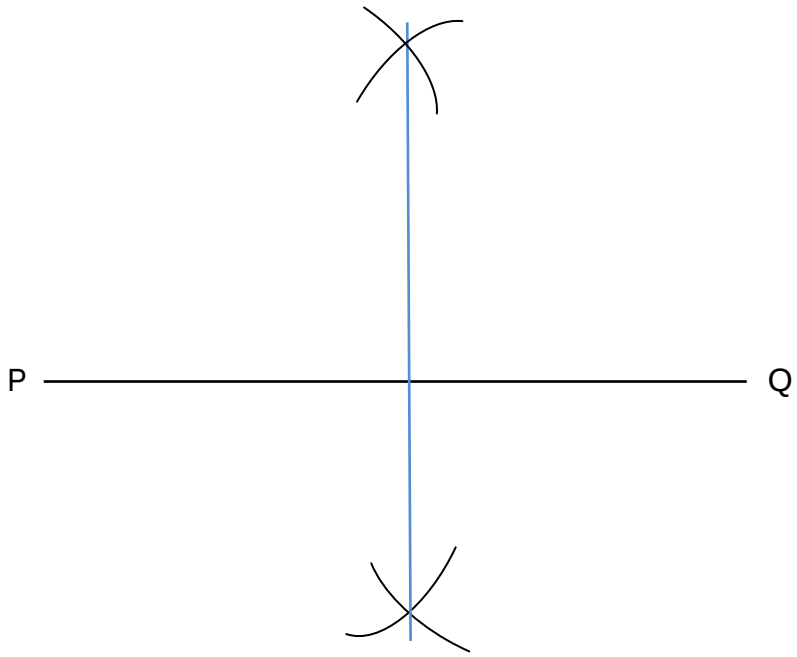


Put your compass on the other point. Keep the compass distance fixed and create arcs in the other direction.



Find a straight edge and connect a line of where the two arcs you made above and below meet.

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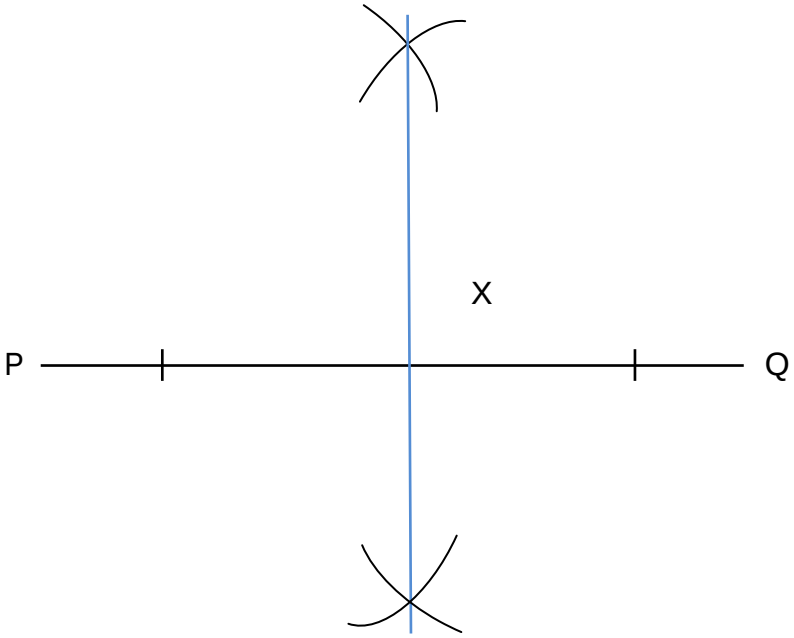
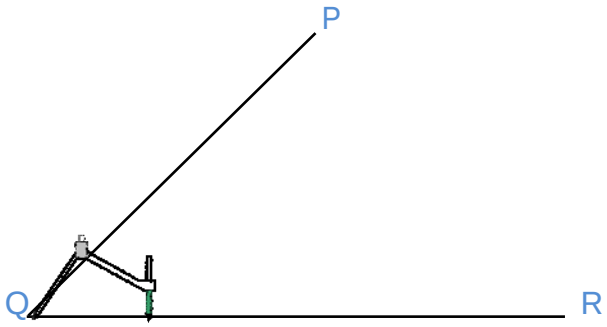
You have created a new perpendicular line by creating a bisector.



Explanation # 3

(1) Place the compass point on the angle's vertex Q.



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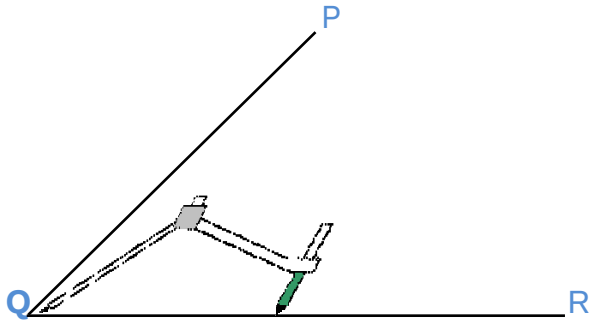
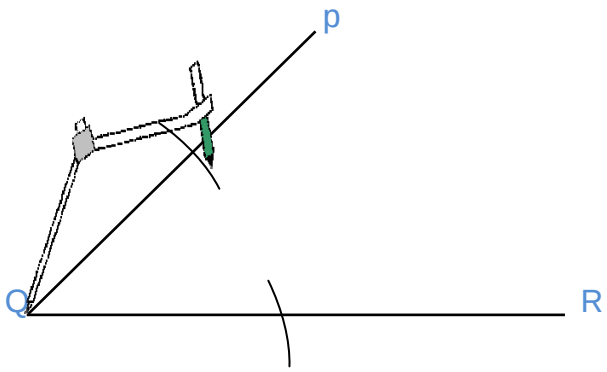
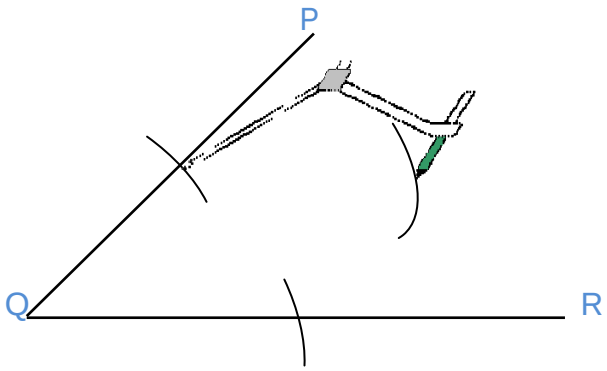
(2) Adjust the compass cover about half of the line.



(3) Draw an arc across each leg of the angle.



(4) Put the compass point where the arc touches one of the legs and create an interior arc.



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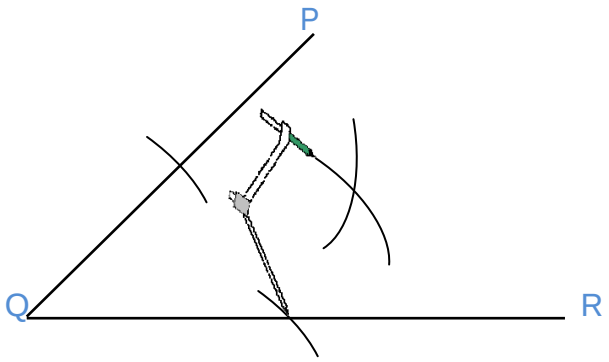
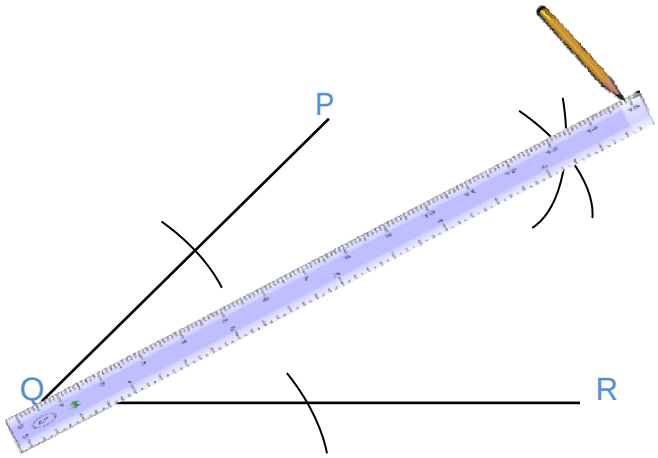
(6) Repeat the same procedure on the other leg.



7. Using a straightedge or ruler, draw a line from the vertex to the point where the arcs cross



This is the bisector of the angle ∠PQR.