St. Mary's Catholic High School, Muhaisnah

CONSTRUCTIONS - BISECTORS

LO: **To draw angle and line bisectors using ruler and compass.**

SUCCESS CRITERIA

- All students should be able to construct an Line and angle bisector.
- Most students should be able to bisect an acute, obtuse, right angle and straight line.
- Some students should be able to find the equidistant point in a polygon using angle bisectors.

CONSTRUCTIONS - BISECTORS

LO: To draw angle and line bisectors using ruler and compass.

KEYWORDS:

Line, angle, bisector, perpendicular, arc, bisect, intersect

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Line, angle, bisector, perpendicular, arc, bisect, intersect

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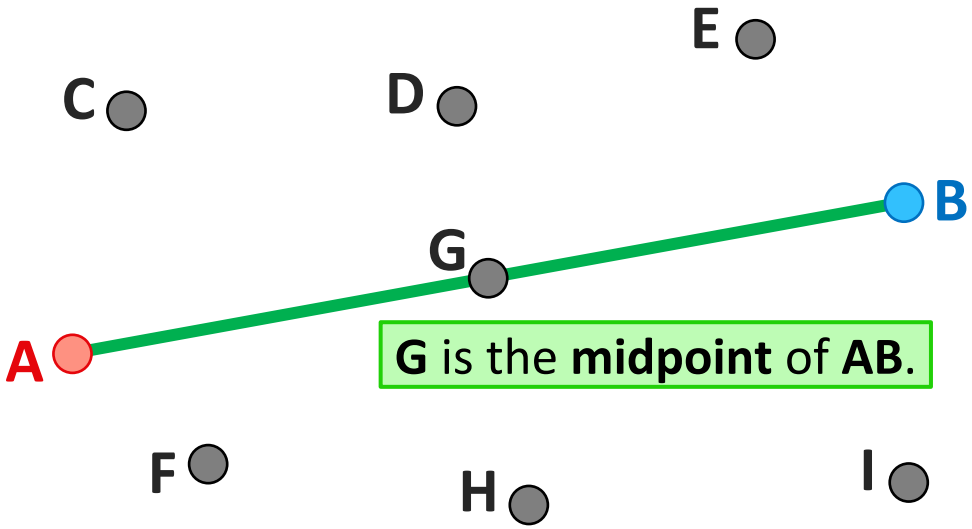
MENTAL MATH

LO: To draw angle and line bisectors using ruler and compass.

03:00

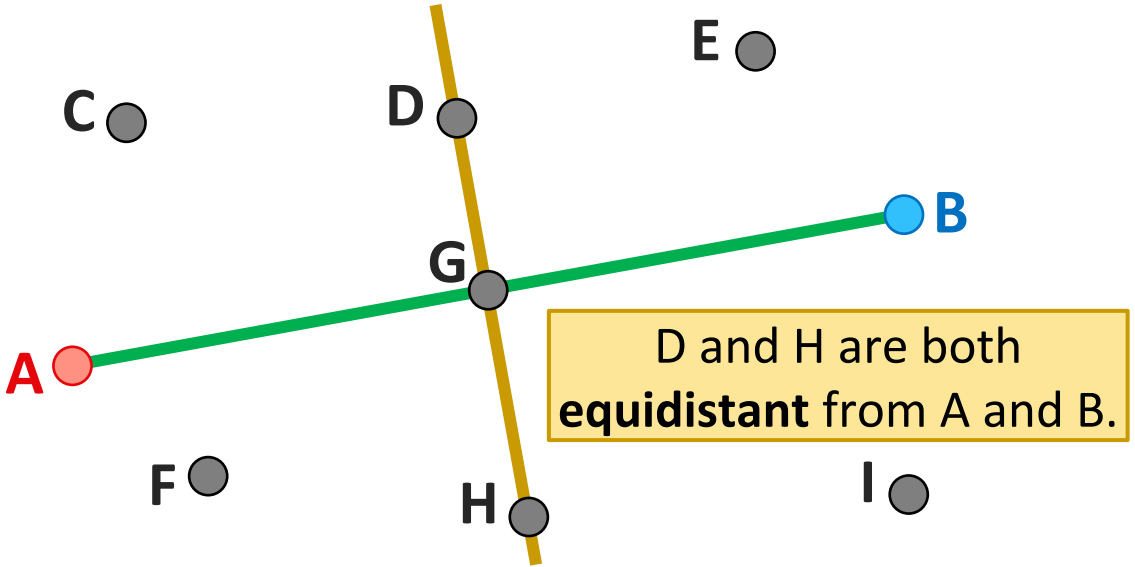
Which of these points is the **midpoint** of **AB**?



CONSTRUCTIONS - BISECTORS

LO: To draw angle and line bisectors using ruler and compass.

Which other points are **equidistant** from **A** and **B**?



D and H are both **equidistant** from A and B.

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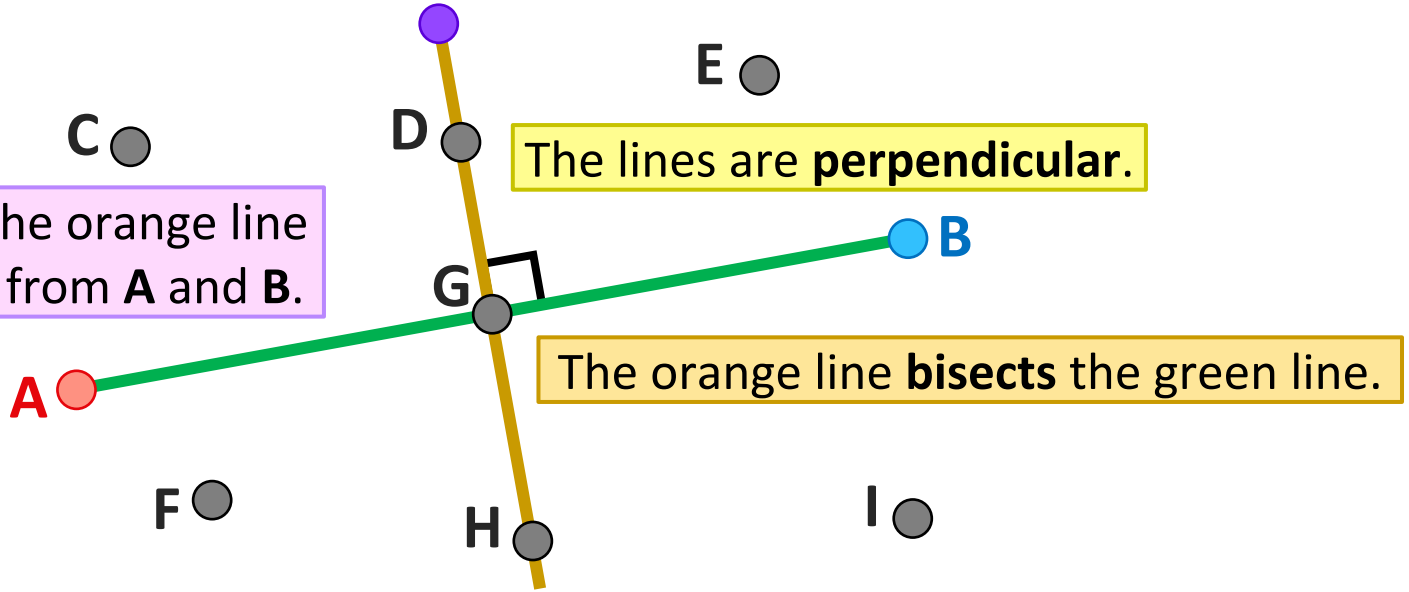
INTRODUCTION

LO: To draw angle and line bisectors using ruler and compass.

How are these lines related?



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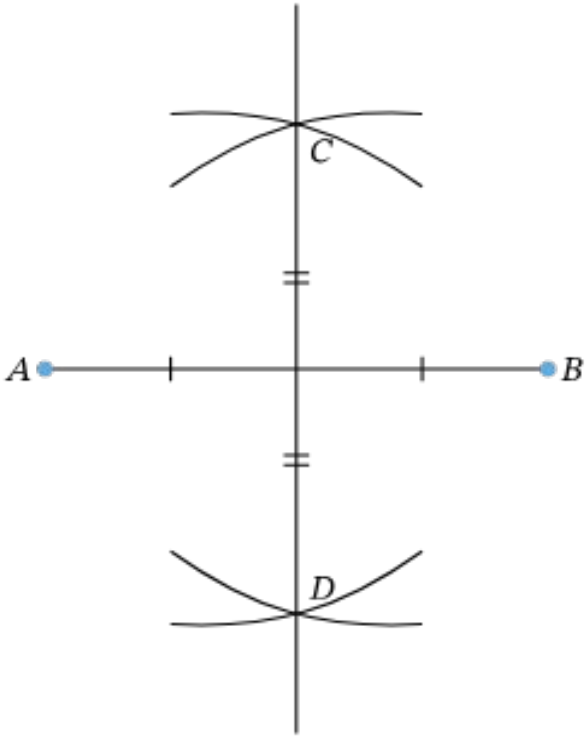
STARTER

LO: To draw angle and line bisectors using ruler and compass.

03:00

When we connect the points $ACBD$.What does that figure represent?



- A - A trapezoid
- B - A square
- C - A rhombus
- D - A rectangle
- E - A kite

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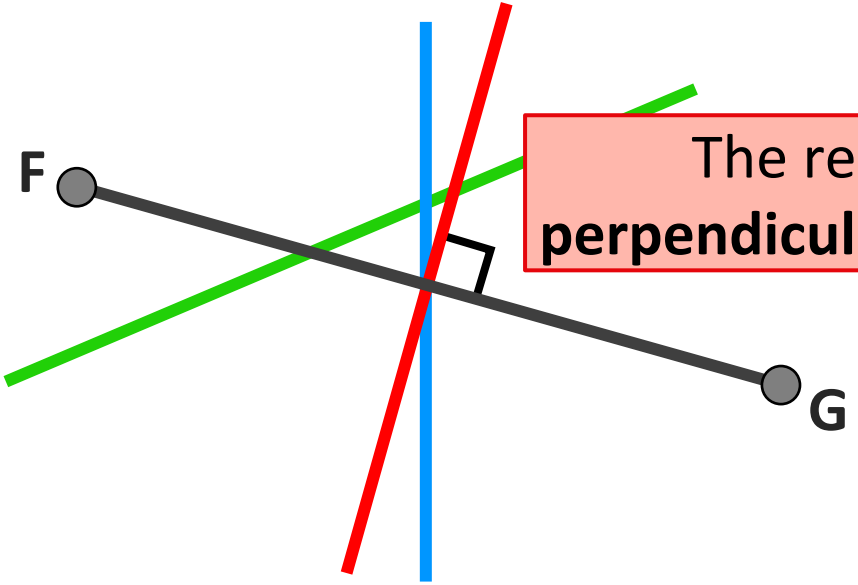
INTRODUCTION

LO: To draw angle and line bisectors using ruler and compass.

Which line is the **perpendicular bisector** of **FG?**



The red line is the **perpendicular bisector** of **FG**.

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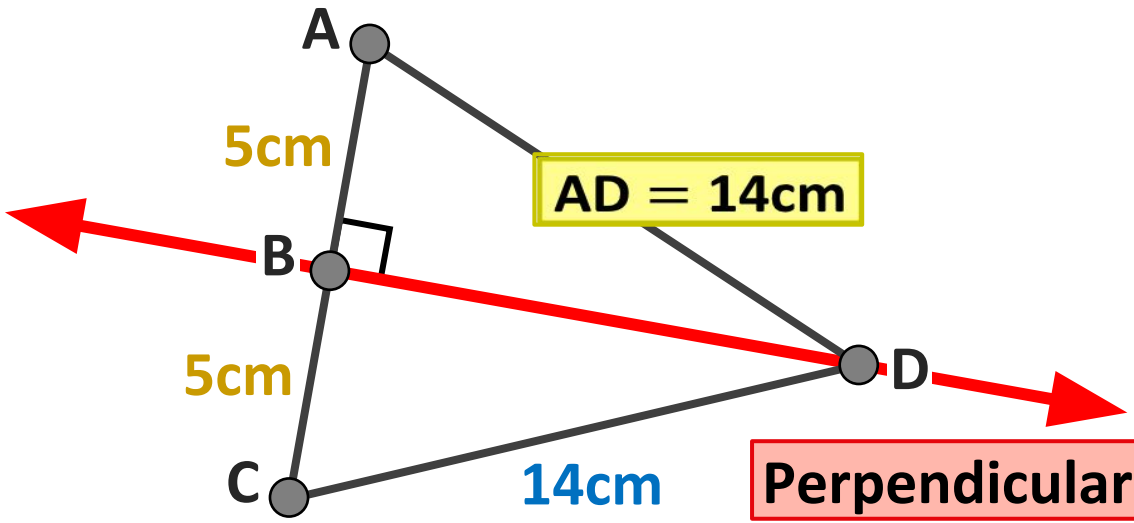
INTRODUCTION

LO: To draw angle and line bisectors using ruler and compass.

What is the length of **AD**?



Perpendicular bisector of **AC**.

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MY TURN

LO: To draw angle and line bisectors using ruler and compass.

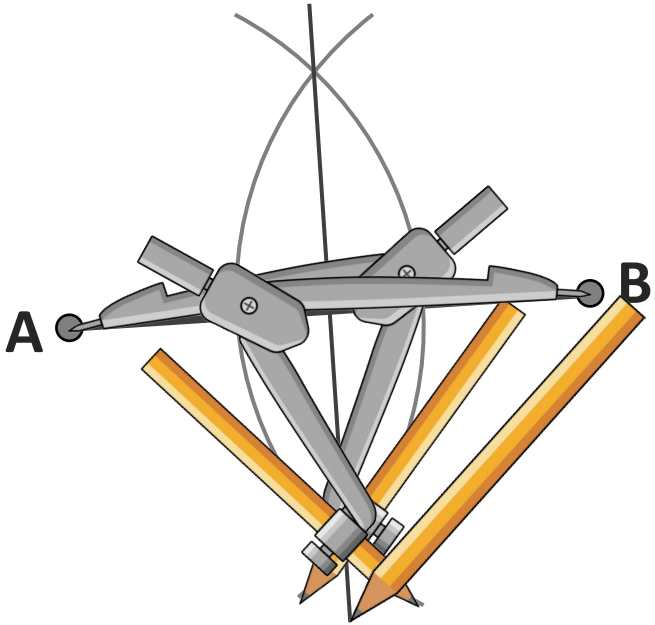
Ex1 Draw two points on your page and label them A and B.
Join them with a straight line.
Construct its **perpendicular bisector**.

Solution

(1) Draw two equal arcs.

(2) Connect the intersections with a straight line.

(3) This line is the **perpendicular bisector** and contains all the points **equidistant** from **A** and **B**.



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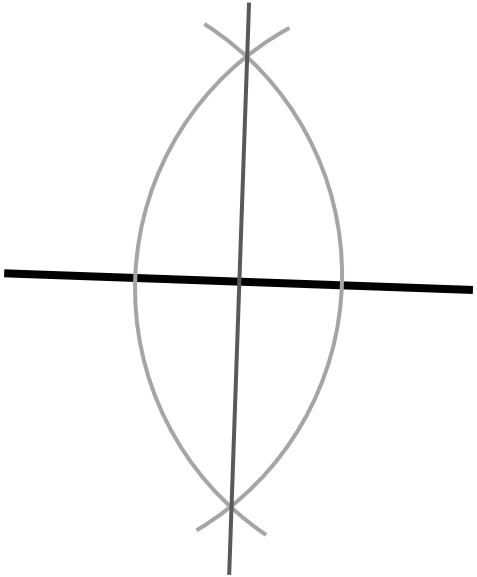
YOUR TURN

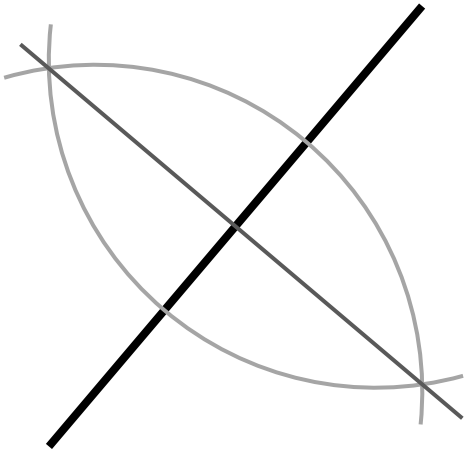
LO: To draw angle and line bisectors using ruler and compass.

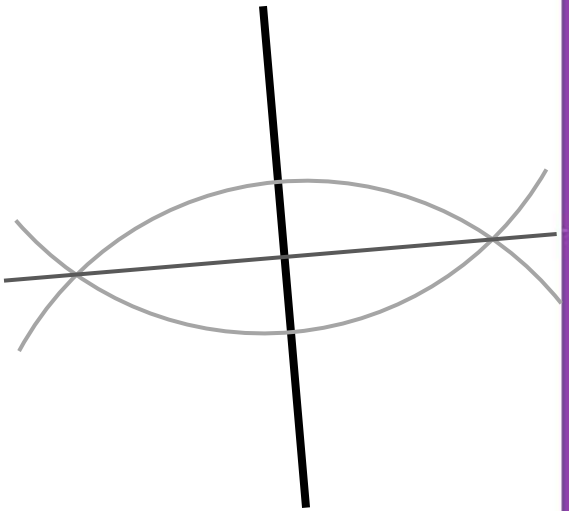
Q1 Construct the perpendicular bisector of the following lines.

03:00

Solution







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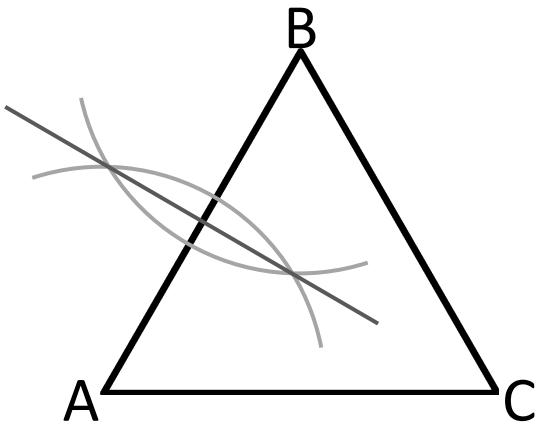
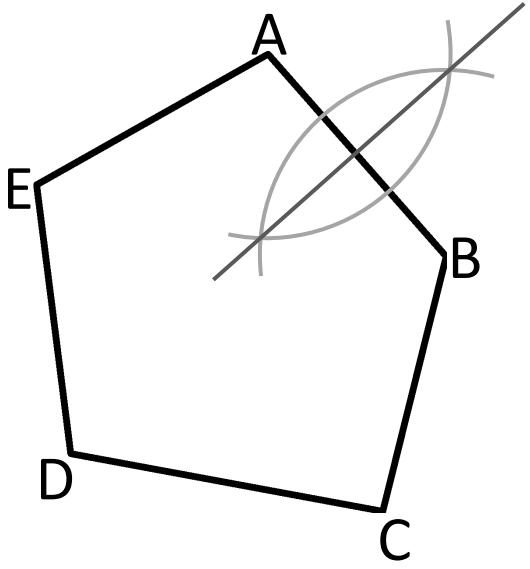
PLENARY

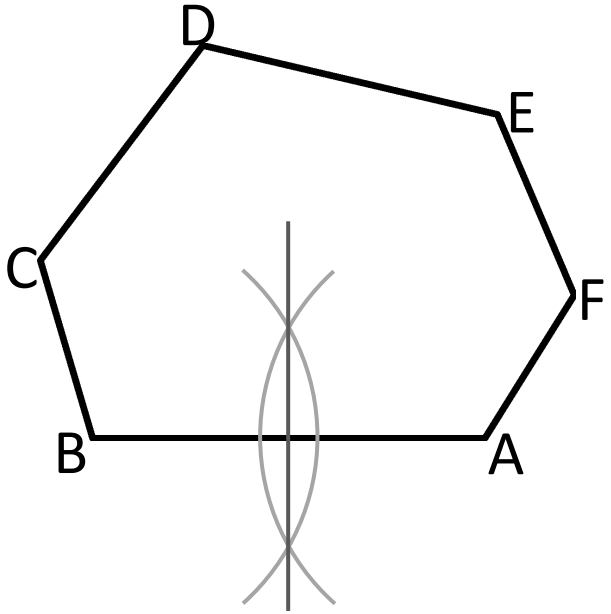
LO: To draw angle and line bisectors using ruler and compass.

Q2 Construct the perpendicular bisector of the line **AB** in each of the following.

Solution







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INTRODUCTION

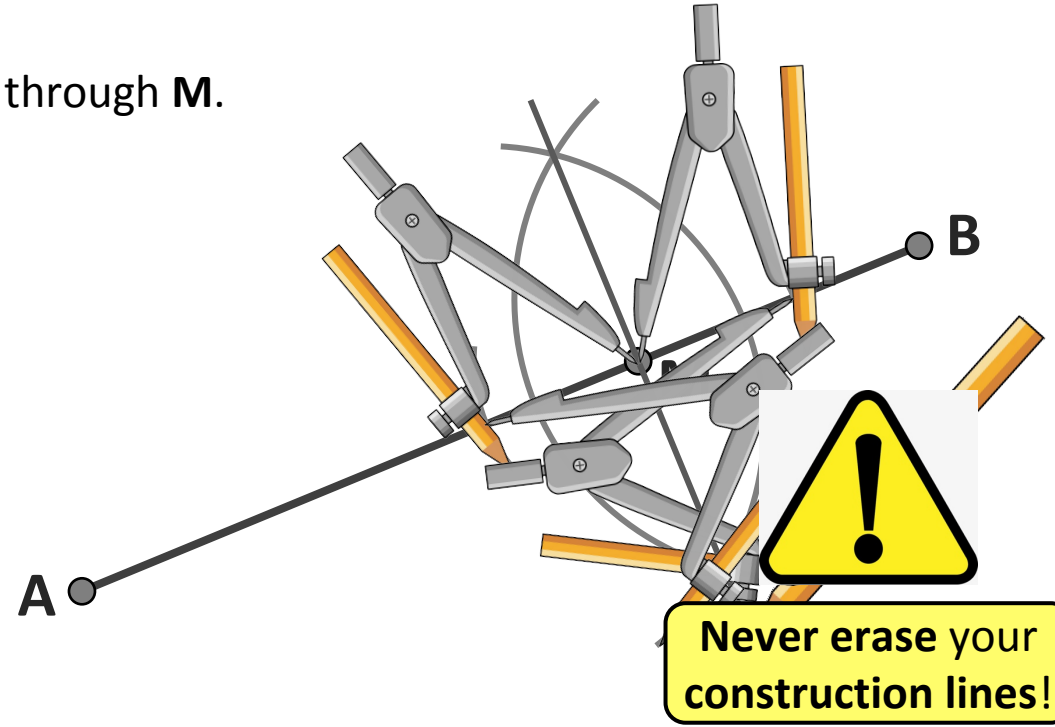
LO: To draw angle and line bisectors using ruler and compass.

Ex2 **M** is a point on the line **AB**.
Construct a line **perpendicular** to **AB** through **M**.

Solution

(1) Use your compass to find two points on the line equidistance from **M**.

(2) Construct a perpendicular bisector of these two points.



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INTRODUCTION

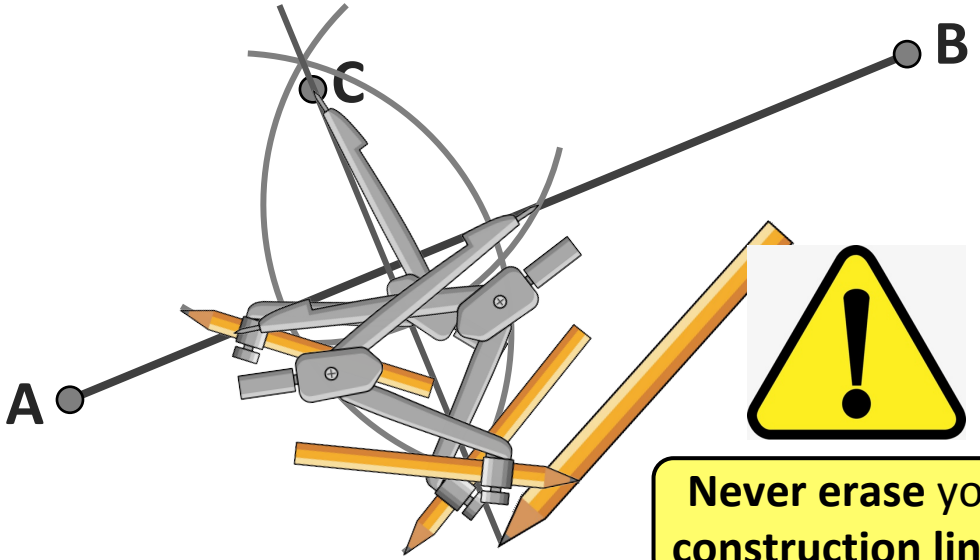
LO: To draw angle and line bisectors using ruler and compass.

Ex3 Construct a line **perpendicular** to **AB** through **C**, which is a point **not on AB.**

Solution

(1) Use your compass to find two points on the line equidistance from **C**.

(2) Construct a perpendicular bisector of these two points.



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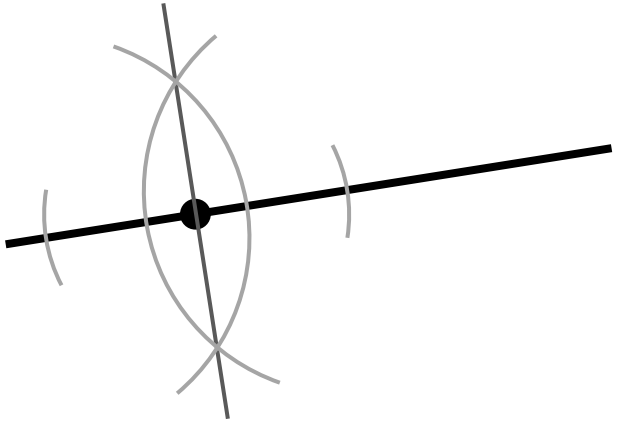
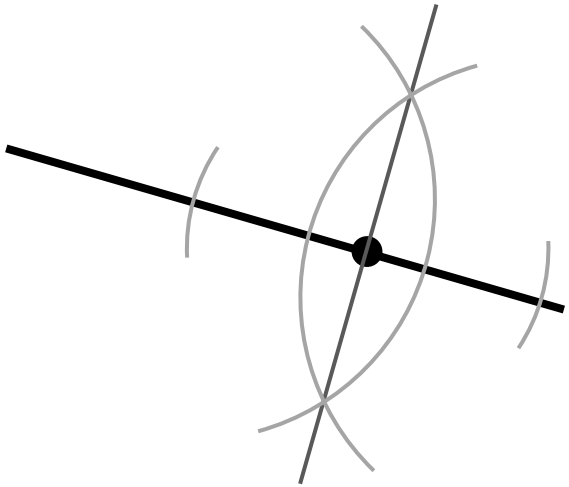
Your turn

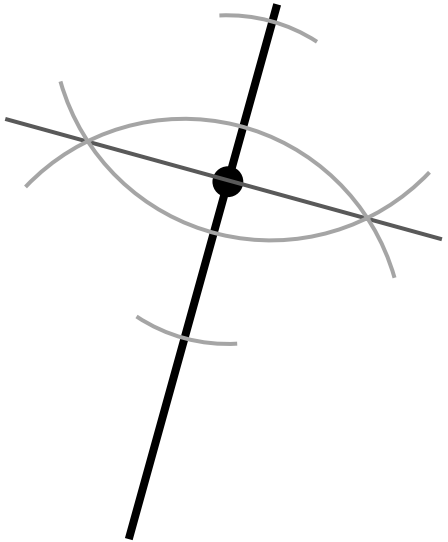
LO: To draw angle and line bisectors using ruler and compass.

Q3 Construct the perpendicular bisector of the following lines through the given point.

Solution







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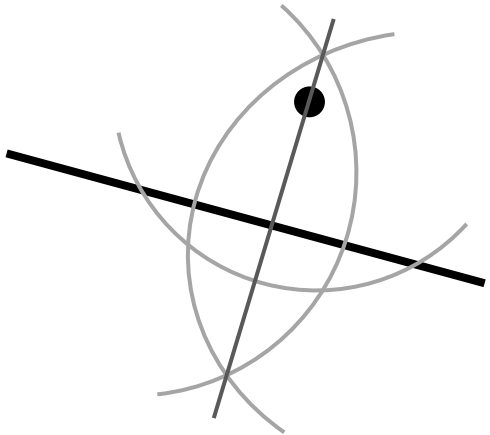
PAIR TASK

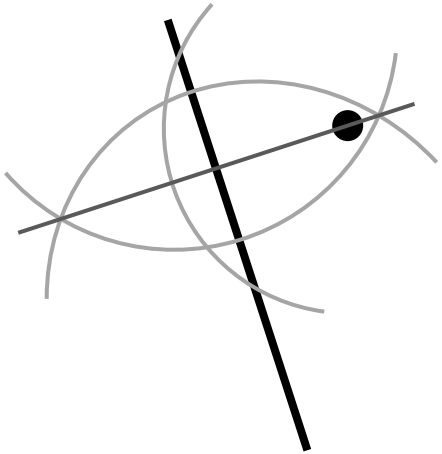
LO: To draw angle and line bisectors using ruler and compass.

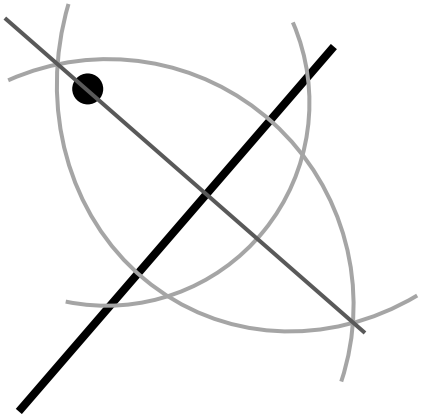
Q4 Construct the perpendicular bisector of the following lines through the given point.

Solution

03:00







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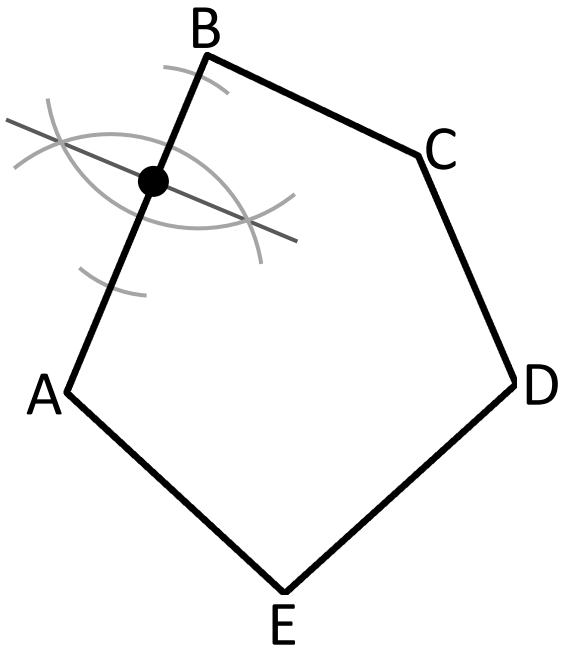
GROUP TASK

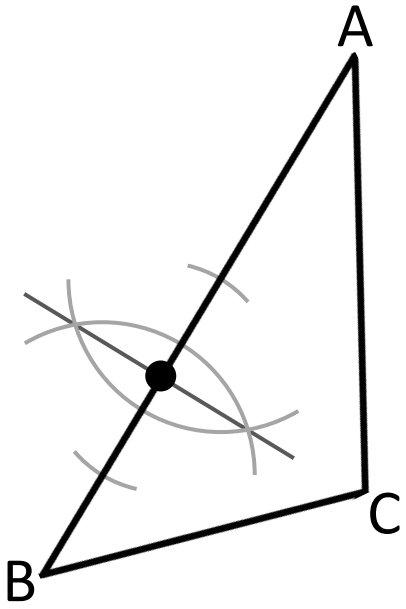
LO: To draw angle and line bisectors using ruler and compass.

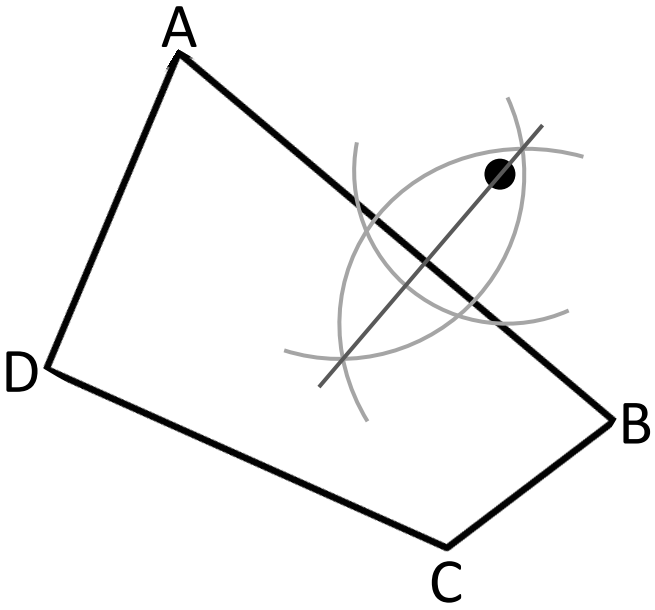
Q5 Construct the perpendicular bisector the line **AB** through the given point.

03:00

Solution







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INTRODUCTION

LO: To draw angle and line bisectors using ruler and compass.

Just as we bisected a line, we can also **bisect an angle**.

Ex4 Draw an acute angle on your page. Construct its **angle bisector**.

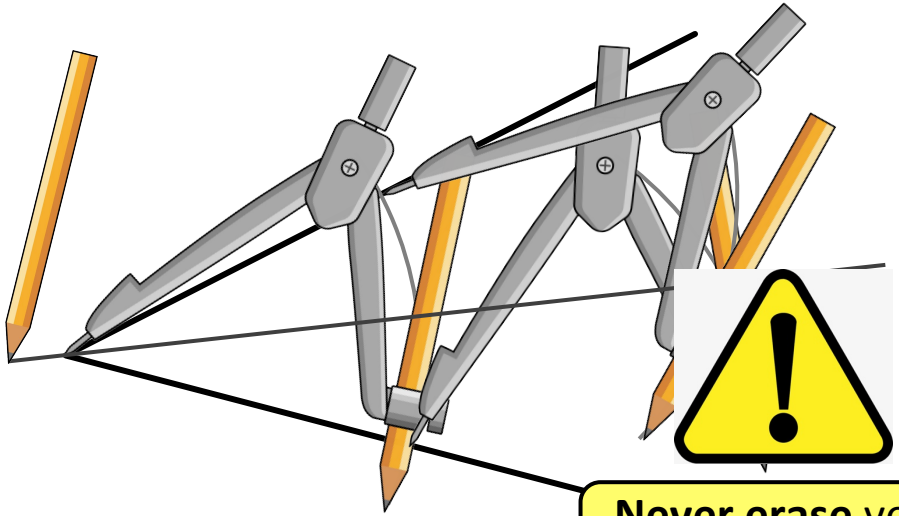
Solution

(1) Draw an arc from the vertex.

(2) Draw two more equal arcs from the intersections.

(3) Join the new intersection up to the vertex.

(4) This line is the **angle bisector** and contains all points **equidistant** from both **arms** of the angle.



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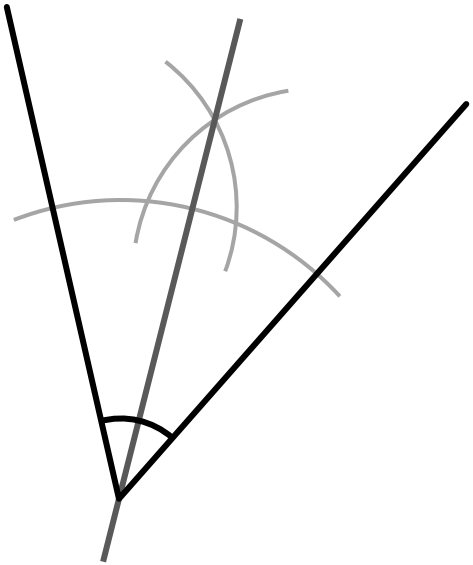
YOUR TURN

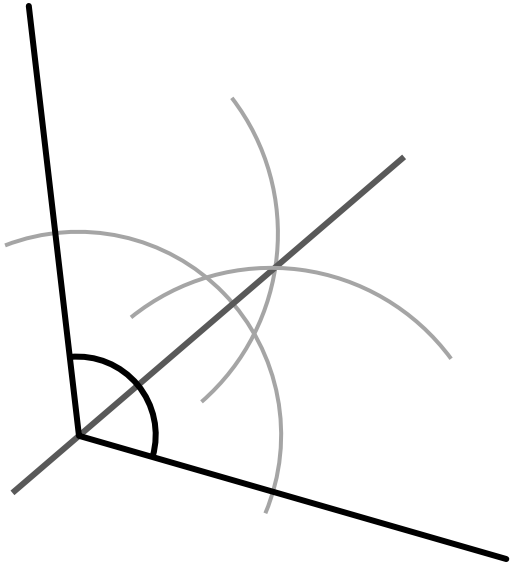
LO: To draw angle and line bisectors using ruler and compass.

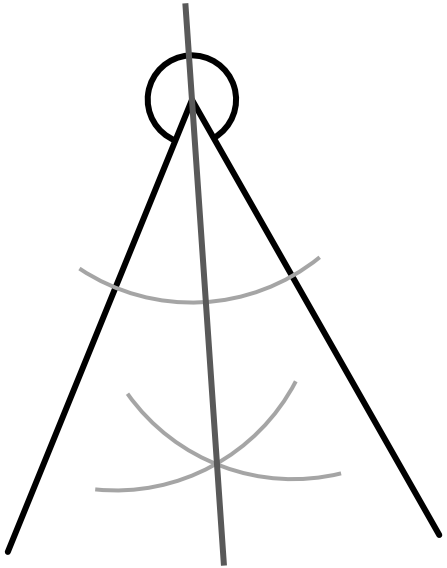
Q6 Construct the **angle bisector** of the following angles.

03:00

Solution







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CORE TASK

LO: To draw angle and line bisectors using ruler and compass.

Q1 Draw a near vertical line of length 6cm. Using a compass and ruler only, construct its perpendicular bisector.

Q2 Draw a line 8cm in length. Using a compass and ruler only, construct its perpendicular bisector.

Q3 Using a protractor, draw an angle of 64^{o}. Using a compass and ruler only, construct its angle bisector. Check your answer by measuring the two angles formed.

Q4 Using a protractor, draw an angle of 120^{o}. Using a compass and ruler only, construct its angle bisector. Check your answer by measuring the two angles formed.

Q5 Draw a triangle and construct the perpendicular bisector of each side. Draw the smallest possible circle that **does not enter** the triangle.

Q6 Draw another triangle and construct the angle bisector of each vertex. Draw the largest possible circle that **does not exit** the triangle.

10:00

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PLENARY

LO: To draw angle and line bisectors using ruler and compass.

Q7 Construct the angle bisector of ∠**ABC** for each of the following shapes..

03:00

Solution