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TECHNICAL DRAWING

Design Geometry with Computer Aid

GEOCAD

SLOVENIA-ESTONIA-GREECE-PORTUGAL-TURKEY

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1) Divide the line into 2 equal parts

(To cut a given rectilinear angle in half.)

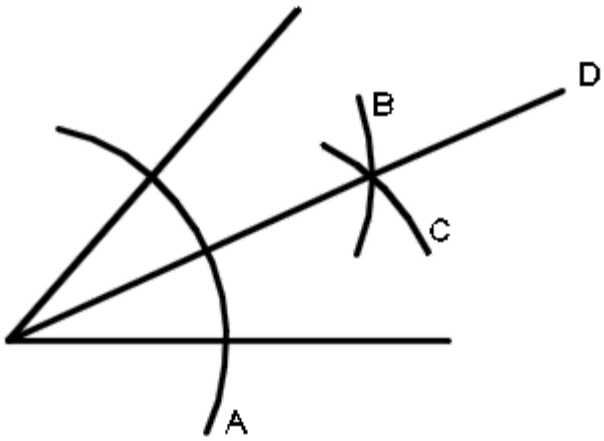
Bisection is dividing line segments or angles into two equal parts by a line, which is called a *bisector.* Bisecting an angle means drawing a ray in the interior of the angle, with its initial point at the vertex of the angle such that it divides the angle into two equal parts.

How to Bisect an Angle?

To bisect an angle without protractor you will need:

- a paper sheet;
- a pencil;
- a 45° ruler;
- a compass.

Let's do this!



1. Draw a parallel 5 cm line with the ruler.
2. With the ruler, draw a line at random angles starting from the starting point of the parallel line.
3. Dip the square at the intersection and draw arc A
4. Without disturbing the measure of the compass, draw arcs B and C that intersect each other by sinking into the point where arc A cuts the lines.
5. Draw a line by aligning the intersection point of arcs B and C with the ruler and the intersection point of the lines.

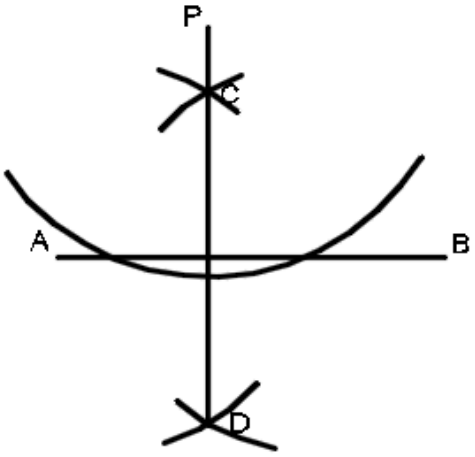
2) Descending a perpendicular line from a point on a given line

The steps required to draw a line from a point 90° above a straight line are listed. You can fulfill the given task by following the step-by-step instructions to draw a perpendicular line.

How to draw a perpendicular line?

materials you need to descend perpendicularly from a point:

- A paper sheet,
- A pencil
- A ruler
- A compass



Let's do this!

1. By inserting our compass at the point p above the line on the given paper, we open our compass a little past the line.

2. Draw an arc with the compass to cut the line at 2 points.

3. Without disturbing the angle of the compass, draw arcs from the intersection points of the line and arc to the bottom and top of the line that will cross each other.

4. Mark the intersecting points as points C and D.

5. Align point C and D and draw a line connecting the points up to point P with the help of ruler.

3) Getting 90^o perpendicular from a given edge point on the line

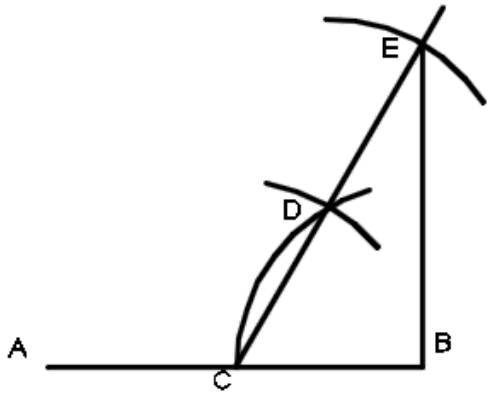
The materials and instructions required to draw a perpendicular line from a point on the edge of a straight line with the help of a compass and ruler are given step by step.

How to draw a perpendicular line from the corner of the line?

materials you need to descend perpendicularly from a point:

- A paper sheet,
- A pencil
- A ruler
- A compass

Let's do this!



1. The compass sinks into any point at the corner of the line and opens up to about the middle of the line..

2. An arc is drawn with the compass to intersect the A-B line and point C is found.

3. The caliper is immersed at point C without changing its angle, and an arc is drawn to cross the existing arc, and point D is found.

4. With the help of a ruler, a straight line is drawn that will intersect the points C and D and pass the point B.

5. The first angle of the compass is dipped into point D, and an arc is drawn to cross the line we drew. and point E.

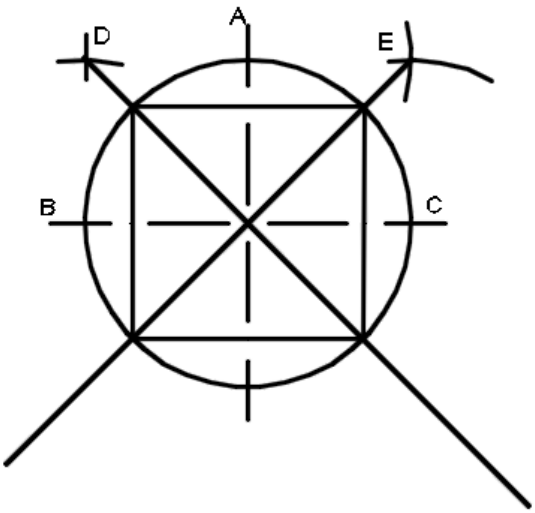
6. With the help of a ruler, a line is drawn by aligning points E and B.

4) Drawing a rectangle in a circle with technical drawing rules

Using appropriate material, draw a circle with a diameter of 5 cm on the axis lines on the given worksheet and draw a quadrilateral inside the circle using the points on the circle..

How to draw a rectangle

materials needed to draw a rectangle:



- A paper sheet,
- A pencil
- A ruler
- A compass

Let's do this!

1. Draw a circle by extending the compass 2.5 cm and sinking it into the center point of the given axis lines...

2. Write point A to the point where the axis lines of the circle intersect from the top, B to the point where it cuts from the left, and C to the point where it intersects from the right.

3. Insert the compass at point A, angle it slightly more than half the distance from point B, and draw an arc outside the circle.

4. Draw an arc so that the caliper will sink into point B and cut the existing arc without disturbing its angle.

5. Without disturbing the angle of the compass, dip it at point A and draw an arc on the outer right side of the circle. and write point D.

6. Without disturbing the angle of the compass, draw an arc so that the caliper will sink into point C and cut the existing arc. and write point E.

7. With the ruler, align the D point and intersect the center of the circle and draw a line up to the outside of the circle.

8. With the ruler, align the point E and intersect the center of the circle and draw a line up to the outside of the circle.

9. Align the points where the diagonally drawn lines intersect the circle side by side, draw them with the help of a ruler and form the square.

5) Drawing hexagons with technical drawing rules

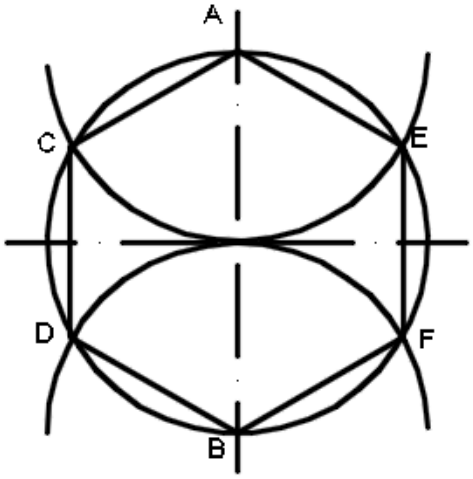
Draw a hexagon using a circle with a diameter of 5 cm drawn on the axis lines on the given worksheet.

How to draw hexagon

materials needed to draw a hexagon:

- A paper sheet,
- A pencil
- A ruler
- A compass

Let's do this!



1. Open the caliper 2.5 cm and draw a circle by inserting it into the center of the axis lines given on the worksheet.

2. Write point A at the point that intersects the axis line at the top of the circle, and point B at the point that intersects the axis line at the bottom of the circle.

3. A semi-circle is drawn that cuts the center of the circle and cuts the circle on both sides, by sinking our compass into point A without disturbing its angle.

4. Write point C at the left point of the semicircle where it cuts the circle, and point E at the right point.

5. By pressing point B without disturbing the angle of our compass, a semi-circle is drawn that cuts the center of the circle and cuts the circle on both sides.

7.Write point D at the left point of the semicircle where it intersects the circle, and point F at the right point.

8. Draw lines connecting the adjacent points by aligning the ruler and form the hexagon.