

GeoGebra – Lesson 2

Using GeoGebra to draw a right-triangle

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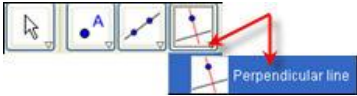



Key Concepts from GeoGebra

- Already discussed: , , 
- Draw line through 2 points 
- Using the 'Algebra View'
- Make a segment always horizontal.
- Draw perpendicular line 
- Rename objects
- Make angle through 3 points 
- Fix 'free' objects using 'Properties'

Key Concepts from Mathematics for right-triangle

- In a right-triangle, the two 'sides' are *perpendicular*.

Script-o-matic

1. Draw 1 point -
 - a. Click on  and then click in the drawing space - point A will be drawn.
 - b. Do this 1 more times for points B - draw it to the right of A
2. Make A and B have the same y-coordinate (lie on same horizontal)
 - a. On the command toolbar, click on View -> *Algebra View*.
 - b. Select the Move tool  and move A and B until they have the same y-coordinate.
3. Draw a line  through A and B.
 - a. Select line tool:

 - b. Then draw \overline{AB} by clicking on A and then on B.
4. Draw 1 point on the line between A and B.
 - a. Select  and move your cursor to a point between A and B - the line \overline{AB} will *thicken*.
 - b. Click and the point C will automatically be placed on \overline{AB} .
 - c. Select  and click-and-drag C noticing that it can only go left and right and *not* up and down.
5. Draw a perpendicular line 
 - a. Select the perpendicular line tool:

 - b. Then click on \overline{AB} and then on A.
 - c. You will get a line perpendicular to \overline{AB} through A.
6. Draw 1 point on the perpendicular
 - a. Select  and click on the perpendicular on a point above A.
7. Hide the lines
 - a. Double-click on each of the lines to open the properties box and deselect 'Show object'.
8. Draw line segments
 - a. Select the segment tool 
 - b. Draw segments from A to C, from C to D, and from D to A.
9. Rename labels
 - a. Select the move tool: 

- b. Because A is the point opposite the hypotenuse, we want it be labeled C so right-click on either the point or the label and scroll down to rename. Type in C. (Notice that C is renamed C₁.)
- c. Rename C to A and D to B (counter-clockwise labeling) and then rename the sides a, b, and c so that the vertex and the side opposite have the same letter.

10. Draw the 3 point angle 


- a. Select the angle-3pt tool



- b. Do it wrong first - Select the points A, C, B. The angle is outside. Click on Edit -> *Undo*.
- c. Now select in counter-clockwise order: B, C, A.
- d. Double-click on the angle and deselect "Show label".

11. Fix the 'free' point C (the original point A)

- a. Double-click on C.
- b. Select 'Fix object'.
- c. Click on the Colour box and change the color to black so the user won't try and move it. (I forgot this in the mathcast ☺.)

12. Select  and click and drag any of the movable (blue) points A or B . Notice that they can only move on the horizontal or vertical.

13. You are done - save your file.