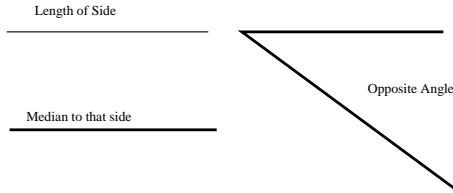
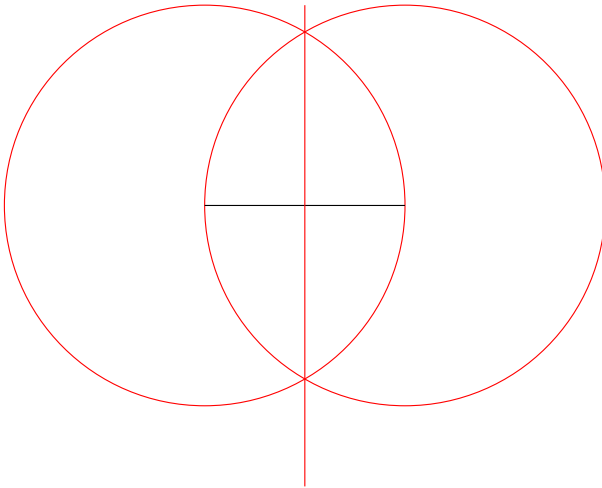


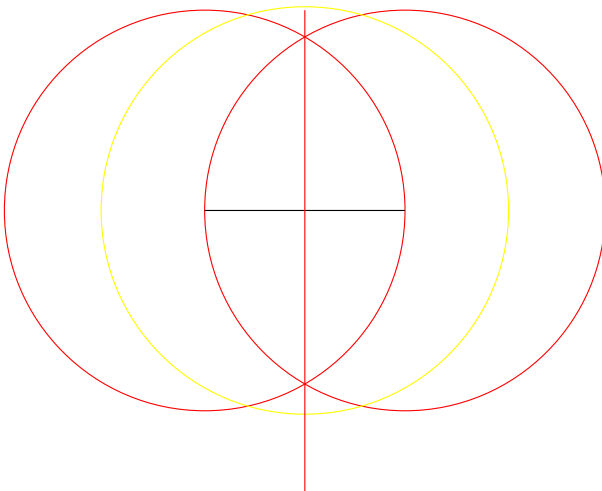
1. We know the length of one side and the length of the median to that side. We also know the angle opposite to that side. We are asked to find the triangle satisfying these conditions. In an attempt to make this more readable, I am going to delete circles from pictures after they have served their purpose. (You should still include them in your homework - I need to be able to tell where your answer came from. It is not enough to guess an answer that is close to being correct.)



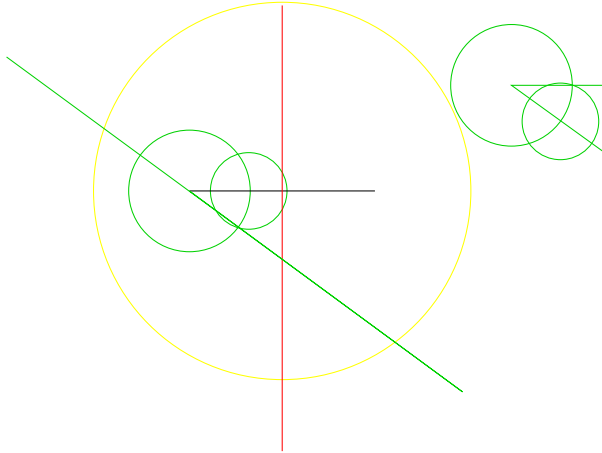
2. First of all we will use the information about the given side and the length of its median. We draw the given side.
3. We bisect the given side.



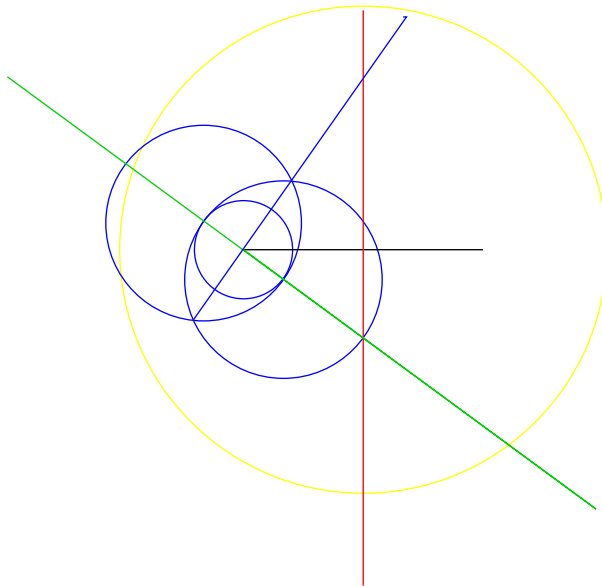
4. We draw a circle of radius equal to the median, centred at the midpoint of the line segment. We know the third point must lie on this (yellow) circle.



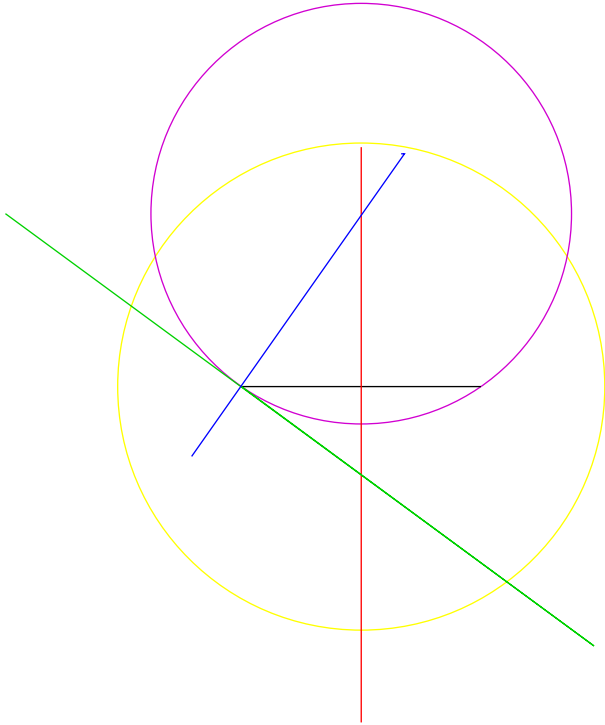
5. We will now use the information about drawing the opposite angle. We are going to draw a circle that will give us a triangle with this as its opposite angle (as explained in class). We copy the angle so that its vertex is at the left endpoint of the given line segment (and lying “beneath” the line segment).



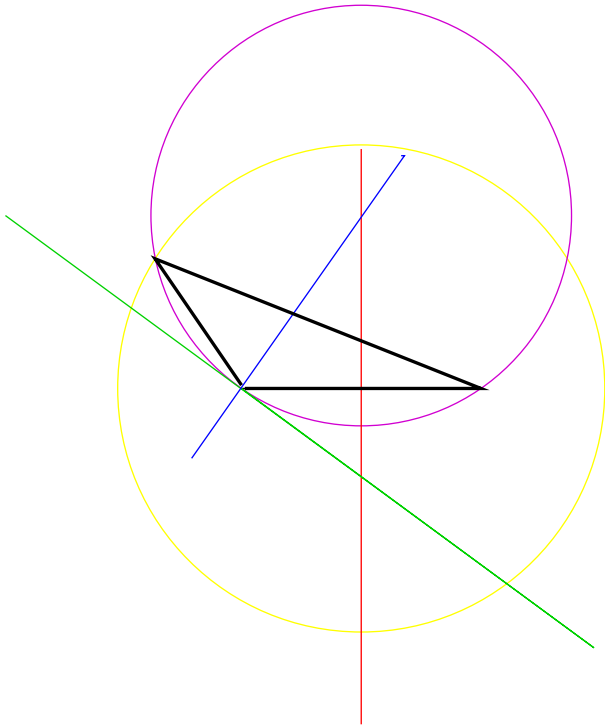
6. The blue line is the perpendicular to the bottom leg of the angle (the green line) and passes through the left endpoint of the line segment. This is one of our basic constructions - drawing a line perpendicular to a given line through a given point.



7. The (blue) line from the last step intersects the (red) perpendicular bisector of the line segment. This is the centre of the (magenta) circle. This circle's radius is the distance from its centre to the left endpoint of the line segment.



8. The magenta circle ensures we have the desired opposite angle. The yellow circle ensures we have the desired median. We take the point of intersection of these two circles as the third vertex of our triangle. We draw the other two sides of the triangle. (We could also use the point of intersection on the right; this would give us the “same” triangle flipped around.)



9. The “super-scary” version and the “important stuff” version (minus the scaffolding of our basic constructions). The magenta circle gives us the correct angle and the yellow circle gives the right median.

