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## Paranormal Research

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*“To the scientist there is the joy in pursuing truth which nearly counteracts the depressing revelations of truth.”*

*—H.P. Lovecraft*

You are a Paranormal Researcher. Thanks to many years of rigorous schooling, you have the ability to do research in various labs around Dunwich. Labs are represented by packets on the wall. If you have a set of instructions giving you a project number, you may take the packet with that project number on it out of the packet on the wall. If you don't have instructions and a project number, you may not interact with the packet on the wall, even if you have this greensheet.

Some research is mechanicked by doing geometric constructions <sup>1</sup> with a compass and straightedge. Each packet will have one or several geometric figures that you must reconstruct in order to open it.

Research equipment is physrepped by a compass and a straightedge. The GMs will supply them, but you may bring your own. You should also bring a pad of paper. With your compass and straightedge, you may:

- Use the compass to draw arcs.
- Use the compass to mark off distances.
- Use the straightedge to make straight lines.

You may not:

- Use your straightedge as a ruler.
- Use lined paper for your constructions.
- Guess an angle.
- Guess a distance or location.

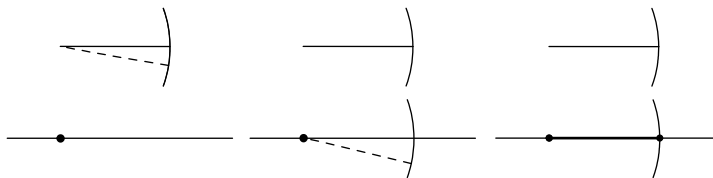
In general, if you want to put the little pointy end of the compass down on the paper, unless it's the first stroke of the figure, you need to put it down on a pencil line or intersection. Likewise, if you want to draw a straight line, it's usually going to be a straight line between two points.

Easy tasks should be straightforward from the examples below. More difficult tasks may require some thinking and/or several steps. Most geometric constructions can be solved in multiple ways, usually with a trade-off between complexity of construction and thinking.

### Elementary operations

You should be able to do these very well.

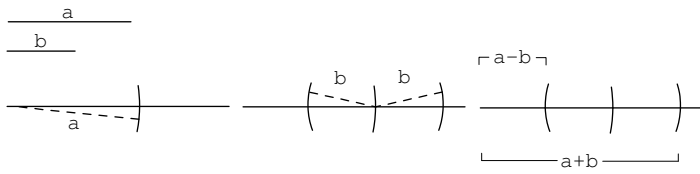
Copying a segment:



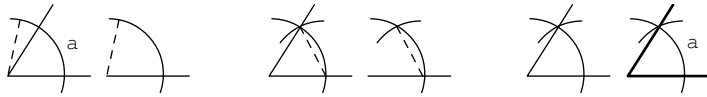

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<sup>1</sup>Our thanks to Telmo and AHI for providing much of the text and all of the figures for this part of the greensheet.

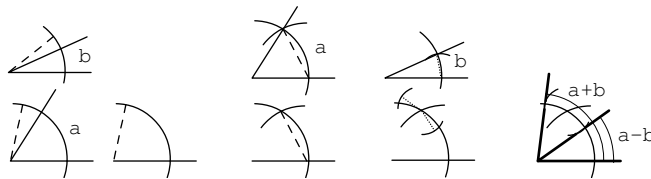
**Adding/subtracting segments:**



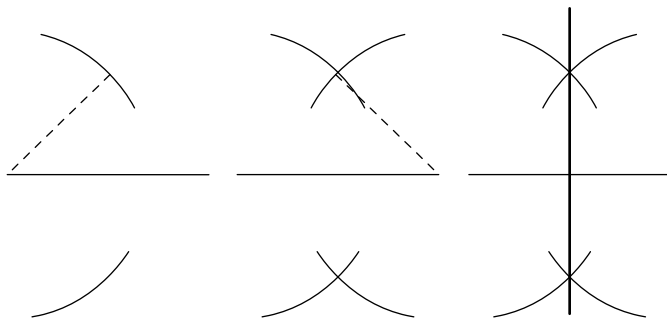
**Copying an angle:**



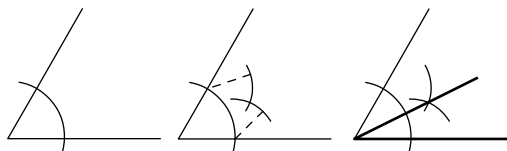
**Adding/subtracting angles:**



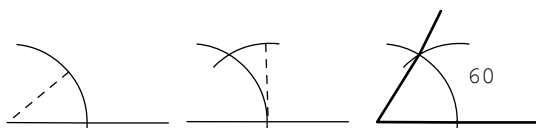
**Bisecting a segment/constructing a perpendicular line:**



**Bisecting an angle:**

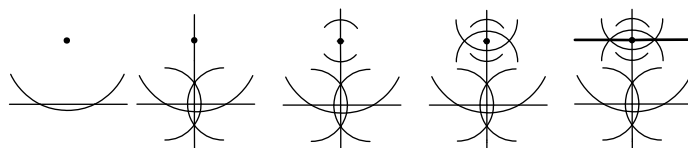


**Angle of 60°:**



Other common angles include  $30^\circ (= 60^\circ / 2)$  and  $45^\circ (= 90^\circ / 2)$ .

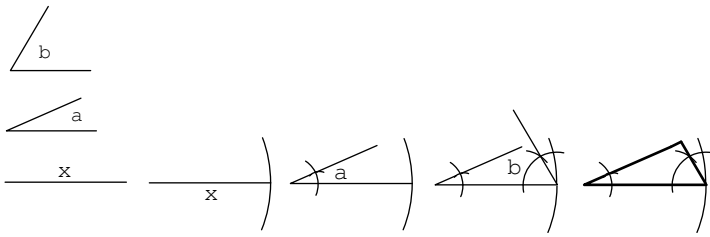
**Line parallel to a line through a given point:**



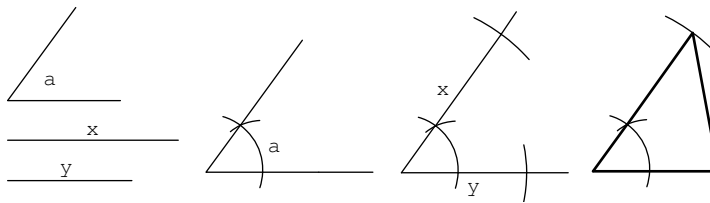
### Triangles

You should be able to do these well.

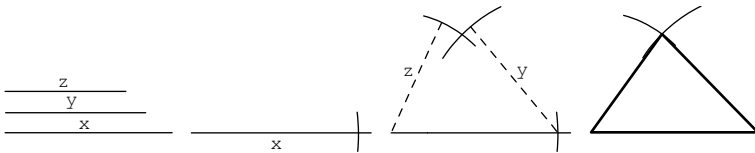
Given 2 angles and a common side:



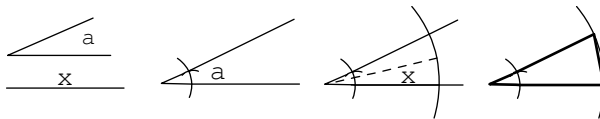
Given 2 sides and a common angle:



Given 3 sides:



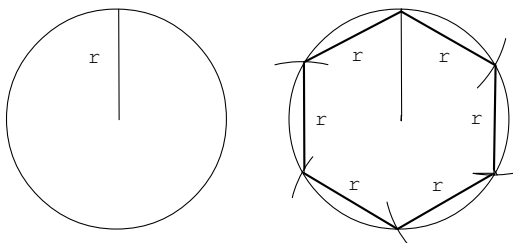
Isosceles triangle (two sides / two angles of same size):



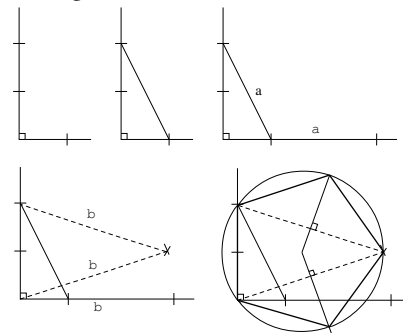
### Regular polygons

You should be able to do these.

Hexagon:



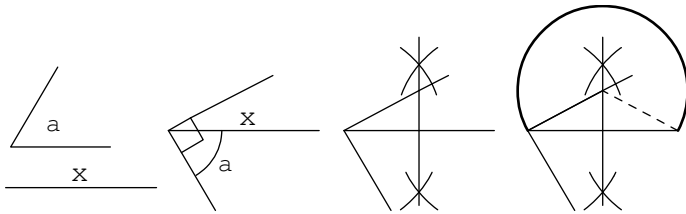
Pentagon:



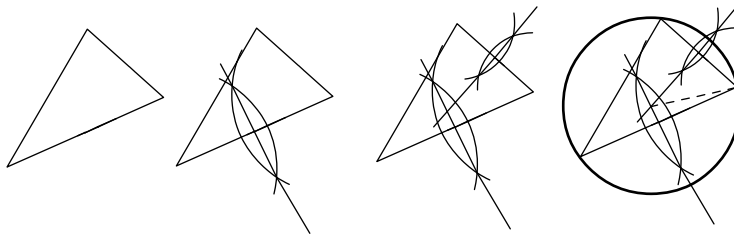
**Other operations**

You may want to understand these if you need to improvise.

Arc given chord and inscribed angle:



Circumcircle of a given triangle (for the center of a given circle, just mark 3 points on it and use this):



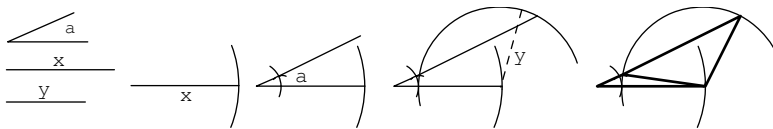
Segment of size  $\sqrt{a^2 + b^2}$ : build a rectangular triangle with cathetus  $a$  and  $b$  and take the hypotenuse.

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**Other triangles**

Constructions provided for informative purpose; you are not likely to need these.

Given 2 sides and non-common angle (note that there are 2 solutions):



Given 2 angles and other side (note that there is a different solution if you switch the sides):

