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| **The perpendicular bisector**  *at right angles - cut in half*   * Set the radius of the compasses to about three quarters of the length AB * Put the point of the compasses on A * Draw an arc (*about the length of a semicircle*) that crosses the line AB * Do not alter the compasses! * Put the point of the compasses on B * Draw an arc again. It needs to cross the first arc in two places. If it doesn’t, make them longer. * Join the two points where the arcs meet with a straight line   Congratulations! You have just made a right angle. And you have bisected the line AB.  *This also gives the set of points* ***equidistant*** *from points A and B* | **An equilateral triangle**  *Take 6cm side length as an example*   * Draw a line of 6 cm. Label the ends A and B. * Set the radius of the compasses to 6 cm. Do not alter this until you have finished! * Put the point of the compasses on A. Draw an arc. * Put the point of the compasses on B. Draw an arc. It needs to cross the first arc in two places. If it doesn’t, make them longer. * Label the point where the arcs cross with a C. * Join C to A and C to B with a straight line   Congratulations! You have just constructed an equilateral triangle |
| **A triangle with three known sides (SSS)**  *Take 5 cm, 6 cm and 8 cm as an example*   * Pick the longest side. Draw a line this long. Label the ends A and B. * Pick one of the shorter sides. Set the radius of the compasses to this length. * Put the point of the compasses on A. Draw an arc. * Take the third side. Set the radius of the compasses to this length. * Put the point of the compasses on B. Draw an arc. It needs to cross the first arc in two places. If it doesn’t, make them longer. * Label the point where the arcs cross with a C. * Join C to A and C to B with straight lines   Congratulations! You have just constructed a triangle with three known sides  *You should also be able to construct* ***SAS*** *and* ***ASA****. This requires a protractor but no compasses.* | **The angle bisector**  *cut in half*   * Set the radius of the compasses to about three quarters of the length AB * Put the point of the compasses on A * Draw an arc that crosses both lines AB and AC * Label these points D and E * Put the point of the compasses on D. Draw an arc (*in the direction of C and D*) * Do not alter the compasses! * Put the point of the compasses on E. Draw an arc that crosses the previous one. If it doesn’t, make them longer. * Label the two points where the arcs meet with an F * Join F to A with a straight line   Congratulations! You have just bisected an angle.  *This also gives the set of points* ***equidistant*** *from lines AB and AC* |

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| **The perpendicular bisector**  *Construct it for this line* | **An equilateral triangle**  *Construct one with 7 cm side lengths* |
| **A triangle with three known sides**  *Use 6.5 cm, 9 cm and 7cm now* | **The angle bisector**  *Bisect this angle* |