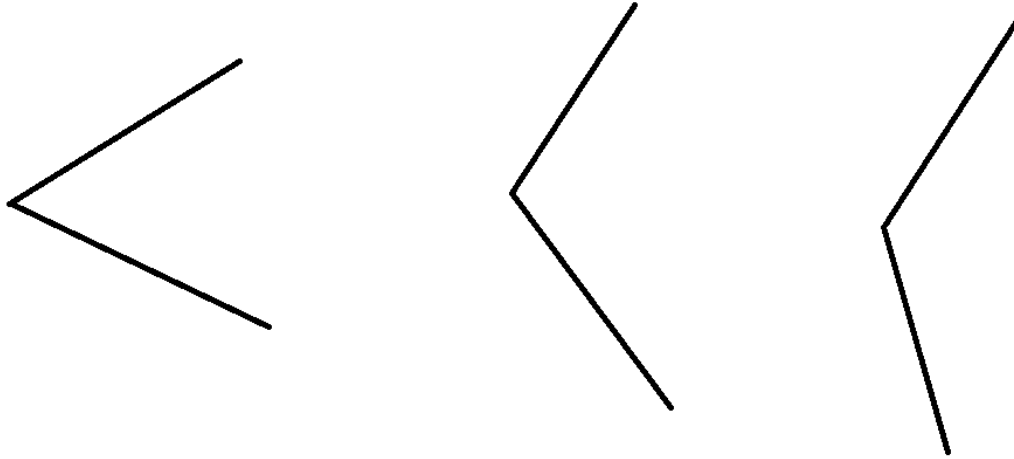**Constructions (* Denotes extension question) – www.m4ths.com**

(1) What must you leave on your diagrams when carrying out a construction using a pair of compasses and ruler?

(2) Construct each of the following triangles in your book.

(a) 6cm, 7cm and 5cm side lengths. (b) 8cm, 4cm and 10cm side lengths. (c) 3cm, 4cm and 5cm side lengths

(d)* An isosceles triangle with side lengths of 6cm and 8cm. (You may find you draw 2 different triangles)

(e)* Any equilateral triangle (f)* A perfect square without using square paper or measuring instrument.

(3) Sketch the following angles in you book and then bisect each the angles.

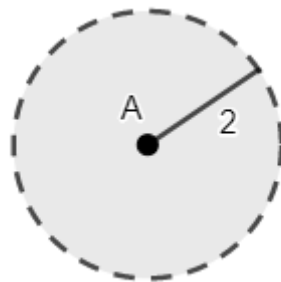(4) Sketch the following lines in your book and create a perpendicular bisector for each of the lines.

A————————B   C————————————D

(5) Sketch each diagram below and construct a perpendicular from the point show to the line.
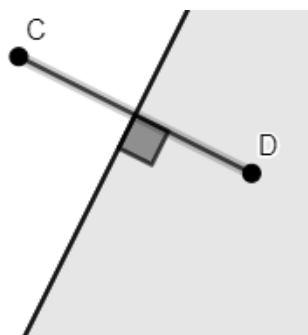
A————————B   C————————————D

(6)* Construct a 30°degree angle in your book.

(7)* Construct a 45° angle in your book. You MUST show all of your construction marks.

(8)* Show that the perpendicular bisectors of any two chords of a circle find the centre of the circle.

(9)* Construct a pair of parallel lines in your book using a pair of compasses.

(10)* Create a regular hexagon using only a pair of compasses and a straight edge.

ALL QUESTIONS REQUIRE THE USE OF A PAIR OF COMPASSES AND CONSTRUCTION MARKS.
SIMPLY USING A RULER IS INCORRECT AND WILL SCORE NO MARKS

(1) Draw the point A. Shade the locus of points that are less than 3cm from A

(2) Draw the point B. Shade the locus of points more than 4cm from B but less than 5cm from B.

(3) Draw the line CD of length 6cm. Shade the locus of points less than 5cm from C and less than 2cm from D

(4) Draw the line EF of length 7cm. Shade the locus of points more than 4cm from E but less than 4cm from F

(5) Draw the line GH of any length. Shade the locus of points closer to H than G

(6) Draw the line IJ of length 9cm. Shade the region closer to J than I **and** more than 6cm from I

(7)* Draw the line KL of length 8cm. Find the point that is equidistant from K and L and between 6cm and 7cm from L

(8) M and N are radio masts that are 5km away. The signal from Mast M covers an area of radius 4km and Mast N an area of radius 3km. Shade the region where there is no signal from either mast. Use the scale 1cm = 1km

(9) A horse is tied to a rope in the corner of a rectangular fenced field measuring 30m by 50m. The length of the rope is 40m. Using the scale 1cm = 10m, show where the horse can move freely in the field.

(10)* Shade the locus of points that are more than 6cm but less than 8cm from the point O and on a bearing of 070˚ from O

(11)* P and Q are 2 points. Find the point that is equidistant from P and Q and on a bearing of 050˚ from P

(12)* R is the path that is on a bearing of 120˚ from S and between 4 and 5cm from S. Show R on a diagram.

(13) Describe fully the locus of points represented below.

(14) Describe fully the locus of points represented below.

(15)*Find the locus of points that are in the region that is southwest to southeast of the point T and no more than 6cm from T.

(16)* Shade the region which is on a bearing of between 108˚ and 120˚ from U and between 4 and 5cm from U.