Scale drawings

1 : 20

For every 1cm on the model there are 20cm in real life

Remember: Scale drawings ONLY change lengths and distances. Angles remain the same

Scale drawings

A picture of a car is drawn with a scale of 1:30

For every 1cm on my image is 30cm in real life

The car image is 10cm

Image	Real life
1cm	30cm
10cm	300cm

(×10 / ×10)

Directions

Clockwise

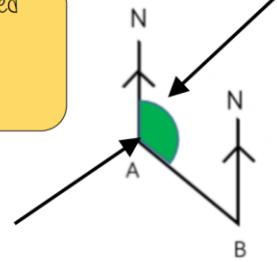
Anti-Clockwise

Understand and represent bearings

- A bearing is always measured from NORTH
- It is always given as three figures

The angle indicated starts from the North line at A and joins the path connecting A to B

This angle shows the bearing of B from A



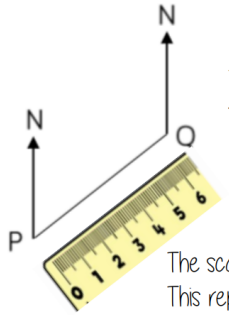
The bearing of B from A is calculated by measuring the highlighted angle

Using estimation it is clear this angle is between 090° and 180°

The sentence... "Bearing of ____ from _____" is really important in identifying the bearing being represented

Scale drawings using bearings

Remember – angles DO NOT change size in scaled drawings



The bearing measurements do not change from "real life" to images

The units in the ratio scale are the same

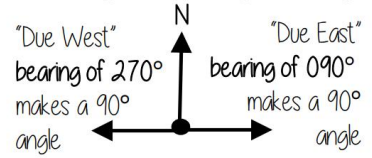
6cm = 30km

6:3,000,000

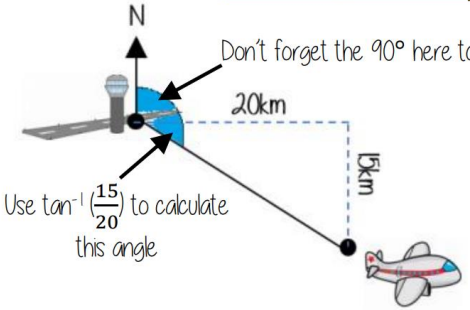
The scale may need to be calculated from the image. This represents 30km from P to Q

Bearings with right-angled geometry

Look for Right-angles: Pythagoras Trigonometry (Sin, Cos, Tan)

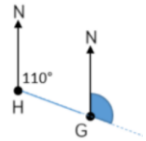


A plane flies East for 20km then turns South for 15km. Find the bearing of the plane from where it took off.

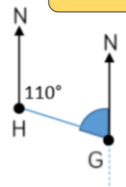


Bearings with angle rules

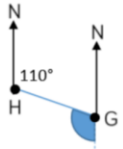
Because two North lines are PARALLEL....



They form corresponding angles and therefore are the same size



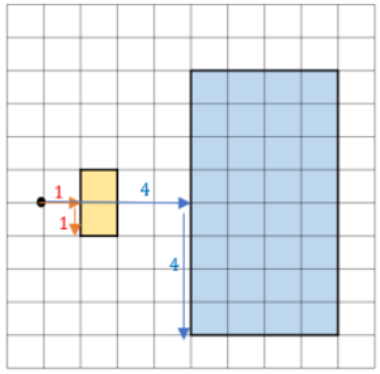
They form co-interior angles and add up to 180°



They form alternate angles and therefore are the same size

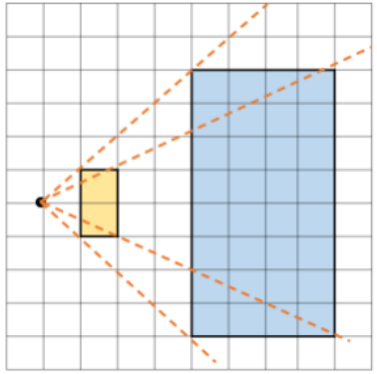
Enlarge a shape from a point

Scaled distances method



Scale the distance between the point of enlargement and each corresponding vertices

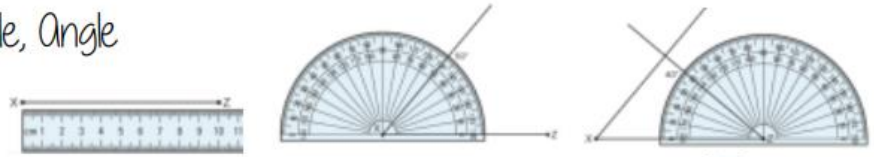
Rays method



Multiply the distance from the centre of corresponding vertices by the scale factor along the ray

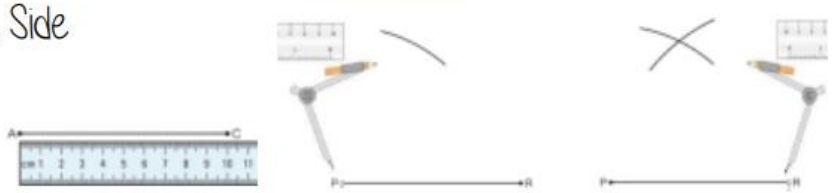
Constructing Triangles

Side, Angle, Angle



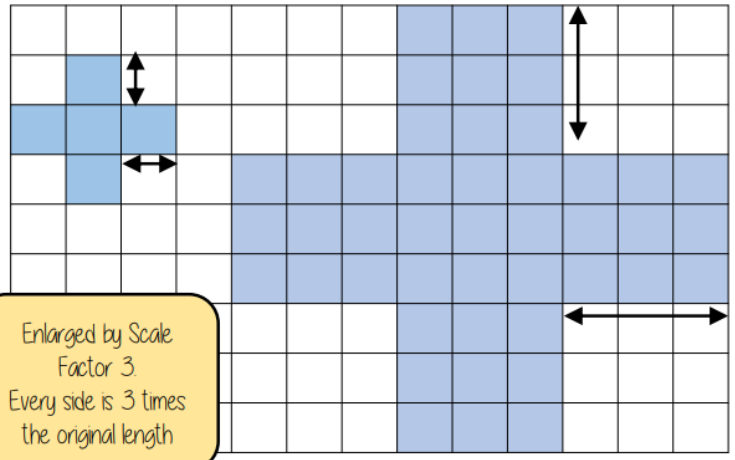
Side, Angle, Side

Side, Side, Side



Enlarge by a positive scale factor

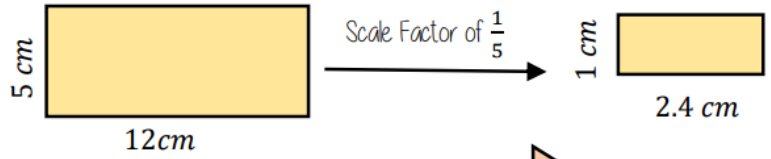
With a scale factor larger than 1 it makes the shape **bigger**

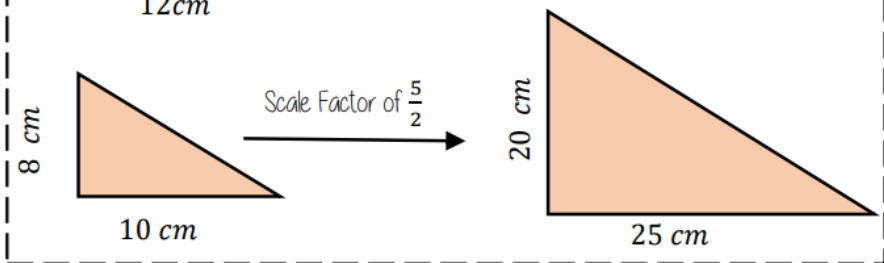


Enlarged by Scale Factor 3.
Every side is 3 times the original length

Positive fractional scale factor

With a scale factor between 0 and 1 it makes the shape **smaller**





Southmoor Academy
ASPIRE · ACHIEVE · ENJOY