
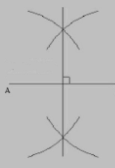

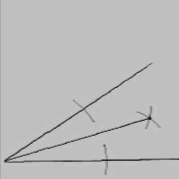
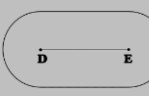


Year 9 Unit 3: Geometry Angles

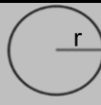


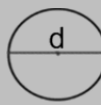


LOCI VOCABULARY

loci	a locus is a path of points that follow a rule
equidistant	equal distance
regions	' more/further than ' indicates shading outside the loci ' within/less than ' indicates shading inside the loci

LOCI

locus of points equidistant from A	a circle with A at the centre radius is the distance given	
locus of points equidistant from two points	perpendicular bisector : open compass to over halfway , draw an arc from each end, join where they cross	
locus of points closer to B than A	perpendicular bisector of AB, shade the side closest to B	
locus of points equidistant from two lines	an angle bisector : place compass on corner, draw two arcs cross both lines, one further away, draw lines joining top left cross to bottom right and vice versa , join where these lines meet to corner	
locus of points a set distance from a line	create two semi-circles at either end joined by two parallel lines	

CIRCLE CALCULATIONS

circle area	$A = \pi r^2$ area = pi x radius ²	
sector	the region of a circle enclosed by two radii and an arc	
sector area	$A = \frac{\theta}{360} \pi r^2$ area = the fraction of the full circle x pi x radius ²	
circumference of a circle	$C = \pi d$ circumference = pi x diameter	
arc	a part of the circumference of a circle	
arc length	$L = \frac{\theta}{360} \pi d$ arc length = the fraction of the full circle x pi x diameter	

CONGRUENCE

congruent	objects with exactly the same shape and size all angles and all sides are the same
similarity	two shapes are similar when one is an enlargement of the other all angles are the same, but the lengths of sides are different
scale factor	the ratio of corresponding sides of two similar shapes

CONGRUENT TRIANGLES

there are four ways to prove triangle congruency	
side, angle, side (SAS)	show two sides and the angle between them are congruent
angle, side, angle (ASA)	show two angles and the side between them are congruent
side, side, side (SSS)	show all corresponding sides are congruent
right-angle, hypotenuse, side (RHS)	show both triangles have a right angle , congruent hypotenuses and one other congruent side

SIMILARITY

two or more shapes with congruent angles but corresponding sides all linked by the same scale factor if the scale factor of enlargement is x length scale factor: x area scale factor: x^2 volume scale factor: x^3
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ANGLES IN POLYGONS: FACTS

polygon	a 2D shape with 3 or more straight sides
regular polygon	a polygon with sides that are all equal and angles that are all equal
interior angle	an angle inside a polygon
sum of interior angles	$(n - 2) \times 180^\circ$ where n is the number of sides
interior angle of regular polygon	$\frac{(n - 2) \times 180}{n}$ where 'n' is number of sides
exterior angle	the angle formed outside a polygon when one side is extended interior angle + exterior angle = 180° because they made a straight line all exterior sum to 360°
some polygon interior angle sums	triangle = 180° quadrilateral = 360° pentagon = 540° hexagon = 720°
	heptagon = 900° octagon = 1080° nonagon = 1260° decagon = 1440°