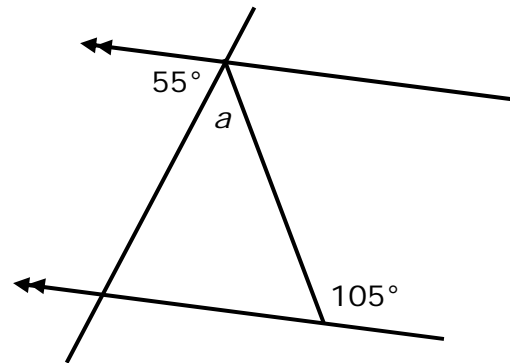


Routine Shapes and Angles Practice #1

1.

Angle $a = \dots\dots\dots$

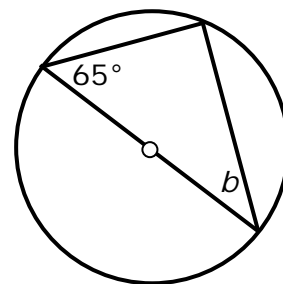
Reasons = $\dots\dots\dots$
 $\dots\dots\dots$



2.

Angle $b = \dots\dots\dots$

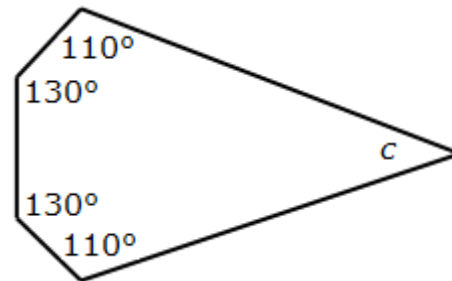
Reasons = $\dots\dots\dots$
 $\dots\dots\dots$



3.

Angle $c = \dots\dots\dots$

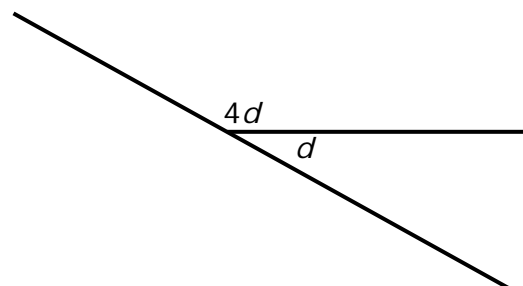
Reasons = $\dots\dots\dots$
 $\dots\dots\dots$



4.

Angle $d = \dots\dots\dots$

Reasons = $\dots\dots\dots$
 $\dots\dots\dots$



5.

Calculate the size of each exterior angle of a regular nonagon. (A nonagon is a polygon with nine sides.) Show each step of your working.

Answers: Routine Shapes and Angles Practice #1

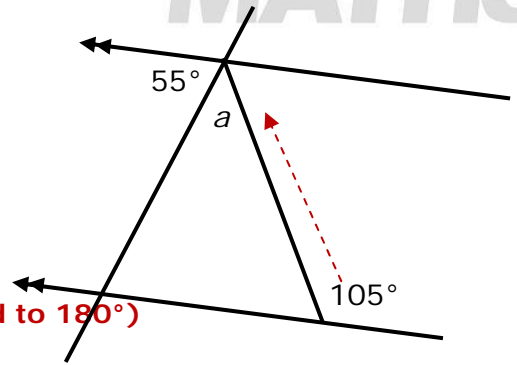
1.

Angle $a = 50^\circ$

Reasons = **Co-interior angle = 75° (dotted)**

$55 + a + 75 = 180^\circ$ (angles on a line add to 180°)

(Alternatively: $55 + a = 105$, as they are alternate on parallel lines)

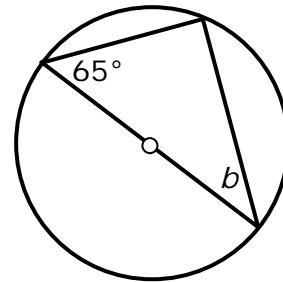


2.

Angle $b = 25^\circ$

Reasons = **Angles extending from a diameter are 90°**

Angles in triangles add up to 180°

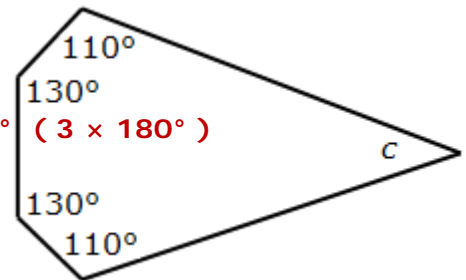


3.

Angle $c = 60^\circ$

Reasons = **Pentagon has interior angles adding to 540° ($3 \times 180^\circ$)**

$540 - 130 - 130 - 110 - 110 = 60^\circ$

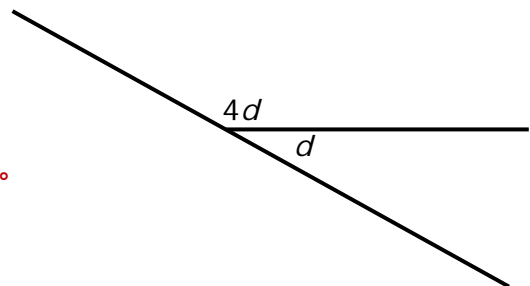


4.

Angle $d = 36^\circ$

Reasons = **angles on a line add up to 180°**

$4d + d = 180$; so $d = 180 \div 5 = 36^\circ$



5.

Calculate the size of each exterior angle of a regular nonagon. (A nonagon is a polygon with nine sides.) Show each step of your working.

40° (not reflex angle, exterior angle is )

Exterior angles of polygon = 360° . It is regular, so each angle is equal. $360 \div 9 = 40^\circ$

Nine sides means it can be built from 7 triangles. Each triangle adds 180° , so the total interior = $7 \times 180^\circ = 1260^\circ$. There are 9 equal interior angles, so each is $1260 \div 9 = 140$. If the interior angles are 140, the exterior angles must be $180 - 140 = 40^\circ$